November-December 1985 The Voice of Naval Aviation US NAVY

naval aviation news

TacAir in Grenada

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Sixty-Eighth Year of Publication

(ISSN 0028-1417)

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COVER—In this watercolor painting by A. Michael Leahy, VA-87 A-7s from *Independence* (Warparty 401 and 404) provide close air support for Marine CH-46s from HMM-261, over Grand Anse Beach, Grenada, on October 26, 1983.

Features

Departments

Naval Aviation News is published bimonthly by the Chief of Naval Operations and Naval Air Systems Command in accordance with Navy Publication and Printing Regulations P-35 (revised May 1979). Opinions expressed are not necessarily those of the Department of the Navy. Reference to regulations, orders and directives is for information only and does not by publication herein constitute authority for action. All material not copyrighted may be reprinted. Naval Aviation News offices are located in Building 159E, Room 512, Washington Navy Yard Annex, Washington, D.C. 20374. Phone (202)433-4407/8/9, autovon 288-4407/8/9. Annual subscription is available through Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Phone (202) 783-3238. Second-class postage paid at Washington, D.C., and additional mailing offices. POSTMASTER: Send address changes to GPO Order Desk, Superintendent of Documents, Washington, D.C. 20402.

Two years ago this month, American forces wrapped up Operation *Urgent Fury*, the American rescue operation in Grenada. VA-87 flew many strike missions that made the difference and it's worth "A Look Back" at "TacAir in Grenada." Page 6.

Kremlin, the USSR's forthcoming 65 to 75,000-ton carrier, will be launched by the end of the decade. What impact will it have? Several naval authorities offer their personal views on Russia's first supercarrier beginning on page 10.

The F4U *Corsair* has a colorful history. A WW II-vintage F4U was delivered by an Army CH-54 *Sky Crane* to roost at the Navy Museum on the Washington Navy Yard last summer. Read how the "Restored F4U Rekindles Memories of VF-17" on page 16.

"Flying the Fighting Falcon" is on the minds of many adversary Naval Aviators today and, hopefully, they will have their hands on it by 1987. Read how the F-16 handles beginning on page 20.

Contemplating a subspecialty? Nuclear Physics (Weapons and Effects) is one worth looking at to enhance your career opportunities. There is more to it than meets the eye if you want to fine tune your problem-solving skills. Page 22.

Lt. Colleen Nevius is a modern pioneer as the "Navy's First Female Test Pilot." The daughter of a retired Naval Aviator, she has gone where no woman aviator has ever gone before — to TPS and NATC at NAS Patuxent River, Md. Page 24.

AV-8B Operational Flight Trainer

The first aircraft training simulator that accurately displays a *Harrier II's* transition from jetborne vertical flight to wingborne forward flight is being used at MCAS Cherry Point, N.C. The operational flight trainer was developed by McDonnell Douglas Corp. so that Marine pilots can learn all aspects of the AV-8B's short takeoff and vertical landing flight characteristics, and its weapons systems, missions and capabilities, in a realistic and safe environment.

McDonnell Douglas Corp.

Preparing to land on a computer-generated airfield, this U.S. Marine Corps pilot is getting valuable training in the new operational flight trainer. It does everything that the AV-8B does — turns, climbs, rolls, hovers — without taking the pilot trainee off of the ground.

In the trainer, the pilot sits in an actual AV-8B cockpit 16 feet above the floor, facing a 30-foot-high screen which displays computer-generated images of airfields, ship decks or the ground. Pilots in training "fly" around the air base, land on the same airstrips and see the same buildings that would be seen on an actual flight.

Microwave Landing System

Operational field and flight testing for U.S. certification is being conducted on a new microwave landing system (MLS) built by Northrop Corporation's subsidiary, Wilcox Electric, Inc., at Richards-Gebaur AFB near Kansas City, Mo. The flexibility of MLS technology is expected to increase airport capacities, improve safety, provide approach paths tailored for aircraft characteristics, and allow precision approaches at airports with adverse terrain conditions.

Northrop-Wilcox's MLS consists of an azimuth angle system providing lateral guidance, an elevation angle system for vertical guidance, and precision distance measuring equipment. The MLS's accurate guidance information encompasses a terminal coverage volume up to plus/minus 60 degress in azimuth and 20 degrees in elevation up to a range of 20 nautical miles.

T-45A Named Goshawk

The Navy selected *Goshawk* as the popular name for the T-45A aircraft, which is part of the T-45 Training System (T45TS), formerly designated VTXTS. The system will be used by the Chief of Naval Air Training to replace both T-2Cs and TA-4Js in the intermediate and advanced phases of Navy jet flight training. The T45TS is designed to produce 600 pilots each year at a significantly reduced cost. It will ultimately include procurement of 300 aircraft, 32 simulators, 49 computer-aided instructional devices and a computer-based training integration system.

Improved Carrier Deck Surface

The Navy accepted specifications recommended by a team of Naval Research Laboratory scientists for manufacturing an improved nonskid deck coating for aircraft carrier flight decks. With present surfaces, carrier decks must be resurfaced at least twice a year at an annual cost of about $3 million. Because of its durability, the new coating could cut this cost in half.

Tests demonstrated that the new surface is more resistant to arresting cable damage, which reduces the chance of debris being drawn into jet engines' air intakes. In addition, its improved nonskid characteristics provide greater directional control to taxiing aircraft and personnel and machinery moving on the carrier's deck.

Grampaw Pettibone

Night Rendezvous

An A-6 *Intruder* was leading a nighttime, multiplane, war-at-sea strike. The rendezvous was briefed for 2,000 feet abeam the carrier, right-hand turns. Visibility was three to five miles in haze, but there was a high, bright moon which created a milk bowl-type effect in the area. With an A-7 already aboard, the lead A-6 left the rendezvous circle to rendezvous on the EA-6B, who had lost both TACAN and INS and had not sighted the A-6. Having previously seen the *Prowler*, the A-6 began joining what was perceived to be the EA-6B, but was really the plane guard helicopter. A descent commenced as the A-6 crew became distracted by the high closure rate and unusual light patterns on what they continued to think was the *Prowler*. Noting the descent, the BN transmitted a caution as the flight passed through 1,000 feet. The BN's UHF switch malfunctioned but the call went over the ICS. The descent continued. The A-7 pilot transmitted, "Check your altitude." Two seconds later, as the *Intruder* was pulling up, the *Corsair II* struck the glassy water in a flat attitude, bounced, then hit the surface again and exploded. The pilot was killed.

Grampaw Pettibone says:

What can I say? These pilots had excellent reputations. But a breakdown in scan pattern and sound judgment led to disaster. Crew coordination was not the best in the *Intruder*. Basic air work went by the boards. Plus, the *Intruder* crew failed to reset the radar altimeter from the 50-feet launch setting, which didn't help.

Dissimilar aircraft, right-hand rendezvous, nighttime conditions with less than ideal visibility: these become nasty ingredients when mixed together, even for veteran aviators.

Don't allow yourself to be drawn into the spider's web. Know when to withdraw from a bad situation. Stay ahead of your aircraft. In this kind of work, neither leaders nor wingmen can ever lighten up on the concentration.

Day After the Night Before

The pilot and RIO of a fighter squadron beach detachment in the Pacific launched about noontime on a 1.5-hour local fam flight. The weather forecast included multiple cloud layers throughout the operating area. These were associated with a southwest monsoon.

The night before, the pilot and RIO attended a wetting down party that lasted until about 2:00 a.m. On the morning of the sortie, a squadron officer suggested that the flyers cancel the flight because they were not in condition to fly. They disregarded this caution.

At the expiration of the fighter's ETA, tower personnel began an unsuccessful series of checks on its whereabouts. A search began but was severely hampered by a lack of information about the aircraft's route of flight. The crew had not indicated specifically where they were going in the operating area. Later, it was presumed that they had planned to fly low-level and accumulate flight time while deviating as necessary to avoid significant weather and maintain VMC.

In the afternoon of the next day, an Air Force C-130 crew spotted parachutes on the ground. Due to rugged terrain, poor weather and USAF helicopter mechanical difficulties, a rescue party didn't reach the site until 10:00 p.m. the following night. The pilot and RIO were dead. The parachutes and seat pans of both men were still attached to them. Although proof was not conclusive, it appeared that the men died on impact after the command ejection and prior to full inflation of the main parachute canopies.

Despite an extensive search effort, the aircraft was not discovered until four weeks later when a civilian pointed out to authorities a narrow, ravine-like valley where wreckage was scattered over a one-half-square-mile area. Investigators believe the aircraft crashed at a very high speed and steep dive angle.

Two and a half weeks later, a farmer came forward and said he was plowing a field (at the time of the mishap) and saw a jet aircraft heading inland through a valley. The plane pulled up abruptly and the farmer looked away. Hearing a small bang coming from the plane, he spotted it again. (The bang may have indicated the ejection.) The nose of the plane was passing below the horizon. The aircraft then crashed behind a hill about a mile from the farmer's position. He saw no parts falling from the aircraft, nor were there signs of smoke or fire prior to impact. He did not see the crew eject.

Grampaw Pettibone says:

We'll never know what precisely happened to this crew, but it is quite likely that they violated the 12-hour bottle to throttle rule (described in OPNAV instruction 3710.1K) and shouldn't have flown on this day.

Friends, I don't like to think how many times I've told tales like this since

ILLUSTRATED BY Osborn

Ole Gramps began storytellin' back in Double U Double U Two. But I'm gonna keep tellin' tales like this as long as there's a need for the message.

According to the evidence, the fighter's engines, flight controls and other components were working OK. Sure seems that wetting down party had somethin' to do with the cause of the accident, along with the weather, too.

I ain't gonna beat this into the ground. But I sure would like it if each and everyone of you in Naval Aviation would give the problem thought. Also, I know it's a tough decision, but if you believe a squadron mate ought not to fly because that mate isn't mentally or physically ready, press your case.

Quick Kiss on the Belly

An A-6E was on an overwater night practice bombing mission. The unraked and unlit target was located on an island. Weather was VFR with three to six-foot sea swells. The pilot descended to 500 feet for the run-in at 400 knots. He set the radar altimeter at 450 feet. The BN's attention, meanwhile, was totally focused on his scope.

Realizing the *Intruder* was about 30 degrees off the run-in line, the pilot banked the *Intruder* steeply to the right, then to the left again, pulling some G's in the process, to get on track. About 20 seconds later the crew heard a thump and felt a momentary deceleration. The pilot immediately gained altitude so that his wingman could check the aircraft. At first the crew thought they had suffered a bird strike. Instead, they had struck the water.

The wingman discovered that the A-6's centerline tank, except for some ragged edges, had been torn from the aircraft. There was also damage to the mid and aft engine bay doors. The pilot in the beleaguered aircraft tried to perform a slow flight check but couldn't lower the wheels and flaps. He eventually blew the gear down and made a successful no-flap landing at a shore-based divert field.

Grampaw Pettibone says:

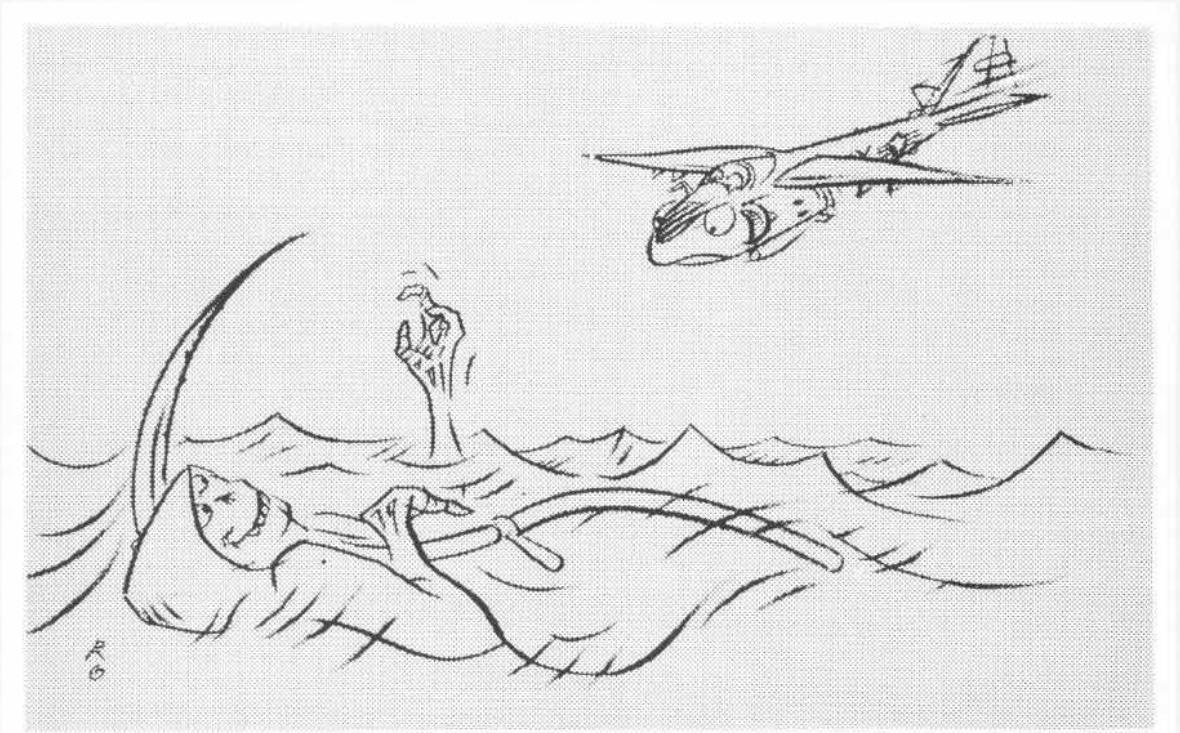
Sufferin' sea swells! These two blokes rubbed shoulders with the grim reaper and got away with it!

A while back another crew crashed and was killed on a similar attack run. Evidence showed they were at low altitude, fast and turning hard, correcting to the run-in line.

A-6s belong in the low-level, nighttime or IMC environment. That's where they make their money. It's also a dangerous place if you throw caution to the wind even for a second.

This *Intruder* crew was pressing hard to make a good run. The BN was busy mindin' his own store as the pilot worked his way onto the bomb line. Neither heard the altitude warning tone. With all that turning, it might not have come on. Or, if it did, the stress factor at the moment might have prevented them from hearing it. And that's the point: horsin' a fast-movin' jet around at night at 500 feet is askin' for trouble. Don't make big corrections!

If you've fouled up down low, and movin' along at a good clip, abort and try again. The grim reaper ain't satisfied just rubbin' shoulders.



Diamond Anniversary Update

By Sherri R. Smith

Planning for the 1986 75th Anniversary of Naval Aviation year-long celebration is up on step and moving out. And the size of the staff to support the program is growing to keep up with the pace.

The *Naval Aviation News (NANews)* and History staffs, which were involved in the conceptual and early planning phases, in addition to their regular duties, continue to support the dedicated staff of Reservists which was introduced in the September-October issue.

One additional Reservist who was called up for temporary active duty as the last of the permanent members of the 75th Anniversary Staff is YN1 Nancy A. Baecher.

Some active duty personnel in the Washington, D.C. area have been brought onto the staff on a collateral duty basis. They are Lieutenant Gerald Collins, from the Navy's Office of Information; Commander Perry Patterson, JAG, representing the Office of the Judge Advocate General; Lieutenant Colonel Don Reeke, USMC, from Headquarters Marine Corps; and Commander Victor Primeaux, USCG, from U.S. Coast Guard Headquarters.

In addition to these people, in September, three Reservists from NAS Willow Grove, Pa., spent their two weeks of active duty for training (AcDuTra) lending a hand to the program.

Commander Ed Vey established contacts with the editors of various flight magazines in order to enlist their support by publishing articles on Naval Aviation throughout the year.

AWCM Bill Rimshaw, shortly after reporting aboard, met with the Master Chief of the Navy to discuss ways of including enlisted Naval Aviation personnel in the 75th Anniversary program. He also worked on several projects that will recognize enlisted contributions to Naval Aviation, including a special issue in *Naval Aviation News*.

ADC Francis Lanza, with his experience in the aviation field, researched various records and compiled a list of enlisted personnel who have been honored for their contributions to Naval Aviation. This information will be used to publicize the evolution of aviation enlisted personnel through the years.

Commander Jim Jacobsen, a Selected Reservist from Norfolk Va., on special AcDuTra, researched and wrote a story on LDO Aviators for publication in the January-February 1986 issue of *Naval Aviation News* magazine, and spent time preparing news information shorts that will be presented on national television.

The blending of knowledge and expertise of each person on the staff with liaison officers from the Marine Corps and Coast Guard, combined with the continuous support of the Reservists that come and go, is producing results at a rapid pace and keeping projects flowing.

Air stations, air facilities and aviation commands across the United States are putting ideas on the drawing board to celebrate this anniversary. Each facility will try to bring this momentous occasion to the public to highlight Naval Aviation's accomplishments. Plans for everything from planting time capsules to dedicating air shows to the anniversary are already in the works at the local level.

The greatest challenge has been to keep costs under control, that is, to get as much accomplished with little or no increase in funding. In this regard, Navy, Marine Corps and Coast Guard aircraft will attempt to set new flight records while on operational missions, exhibiting their flexibility and flying capabilities without expending additional funds.

Numerous articles and special issues of magazines are also scheduled for next year. Stories will appear in civilian magazines, such as *National Geographic, Popular Mechanics* and *Hot Rod,* and military publications, such as *All Hands* and *Navy Times.* All aspects, past, present

JO2 Timothy J. Christmann

Cdr. Matt Costarakis shows YN1 Nancy Baecher how to operate an IBM word processor, which will be used for much of the 75th Anniversary Staff's correspondence.

and future, will be depicted in various stages through the print media to enhance the image and project the full meaning of the 75th Anniversary.

One of the largest events scheduled for the anniversary is the week-long celebration at Pensacola, Fla., in May 1986. This includes a huge gala at the Pensacola Civic Center, a banquet sponsored by the Association of Naval Aviation and an air show featuring the *Blue Angels*.

At the same time, a reenactment of the Navy's NC-4 transatlantic crossing will be getting ready to take off from the original site, then known as NAS Rockaway, Long Island, which is today part of Queens, N.Y. This re-creation will follow the same schedule as the original flight, starting at Rockaway and proceeding up the East Coast to Trepassey Bay in Newfoundland, the Azores, Portugal, Spain and ending at Plymouth, England.

The 75th Anniversary of Naval Aviation coincides with other celebrations throughout the year. In Canada, the London, Ontario Air Show Committee has decided to dedicate its 1986 show in honor of the 75th Anniversary and the 70th birthday of the U.S. Coast Guard. Also, Newport News Shipbuilding turns 100 years old in 1986. Plans to honor this event in conjunction with the 75th Anniversary include the commissioning of USS *Theodore Roosevelt* in October 1986.

Museums across the United States have been asked to participate in the 75th Anniversary and contribute ideas to the staff. All ages of the public can enjoy, reminisce, and learn about the Navy, Marine Corps and Coast Guard's bountiful aviation heritage.

To fully understand and appreciate Naval Aviation's contributions, the public will be given numerous opportunities to participate in many events commemorating this significant anniversary. By attending an air show or the commissioning of an aircraft carrier or by reading numerous articles about future technologies, the public can witness, firsthand, how history was made.

Updates on the various projects, including dates and locations, will be provided in upcoming issues of Naval Aviation News. ■

JOCS Kirby Harrison

Left to right, Reservists Cdr. Ed Vey, AWCM Bill Rimshaw, Cdr. Jim Jacobsen and ADC Francis Lanza worked diligently gathering important information and establishing contacts essential to the 75th Anniversary mission.

A Look Back:

TacAir in Grenada

By JO2 Timothy J. Christmann

On October 18, 1983, Commander Michael O'Brien, then skipper of Attack Squadron (VA) 87 aboard *Independence* (CV-62), noticed something was amiss. The aircraft carrier and embarked Carrier Air Wing (CVW) 6 were supposed to relieve *Eisenhower* (CVN-69) off the coast of Lebanon. But instead of heading east across the Atlantic Ocean, the Norfolk, Va.-based flattop was sailing south toward the Caribbean.

By day's end, Captain W. A. Dougherty, *Indy's* commanding officer, informed CVW-6 and the ship's crew that a crisis was brewing on the island of Grenada, and American naval presence was necessary in case the situation got worse.

However, before *Indy* reached Grenada, the political structure on the once placid island paradise deteriorated. The government was overthrown by a radical Marxist group in a bloody coup that left more than 50 people dead. Once in power, the Cuban-backed junta deported all international journalists and issued a shoot-on-sight curfew which jeopardized the safety of the isle's 1,000 Americans.

On October 23, the day 241 Marine, Navy and Army personnel were killed by a car bomb in Lebanon, Cdr. O'Brien's operations officer told him U.S. ground and air forces were going to rescue the Americans on Grenada.

"At first I thought he was kidding me," said O'Brien. "But he convinced me very quickly that he wasn't."

The decision to launch the operation — codenamed *Urgent Fury* — was made by President Ronald Reagan a few days earlier. In addition to protecting American lives, the operation was designed to prevent further bloodshed and thwart the formation of a communist government which would threaten Caribbean stability.

For most of the following 30 hours the skippers of CVW-6's nine squadrons (VAs 87, 15 and 176; VFs 32 and 14; VAW-122; VAQ-131; VS-28; and HS-15) met with the battle staff officers and planned their strategy. One of the air wing's primary missions was to have A-7E *Corsair IIs* from VAs 15 and 87, and A-6E *Intruders* from VA-176 fly close air support for U.S. Army and Marine Corps ground troops. Other CVW-6 tasks included using E-2C *Hawkeyes* from VAW-122 to provide constant airborne early warning protection; S-3A *Vikings* from VS-28 to conduct antisubmarine warfare surveillance; SH-3 *Sea Kings* from HS-15 to perform ASW and search and rescue operations; and F-14 *Tomcats* from VFs 32 and 14 to fly photoreconnaissance missions and maintain combat air patrol.

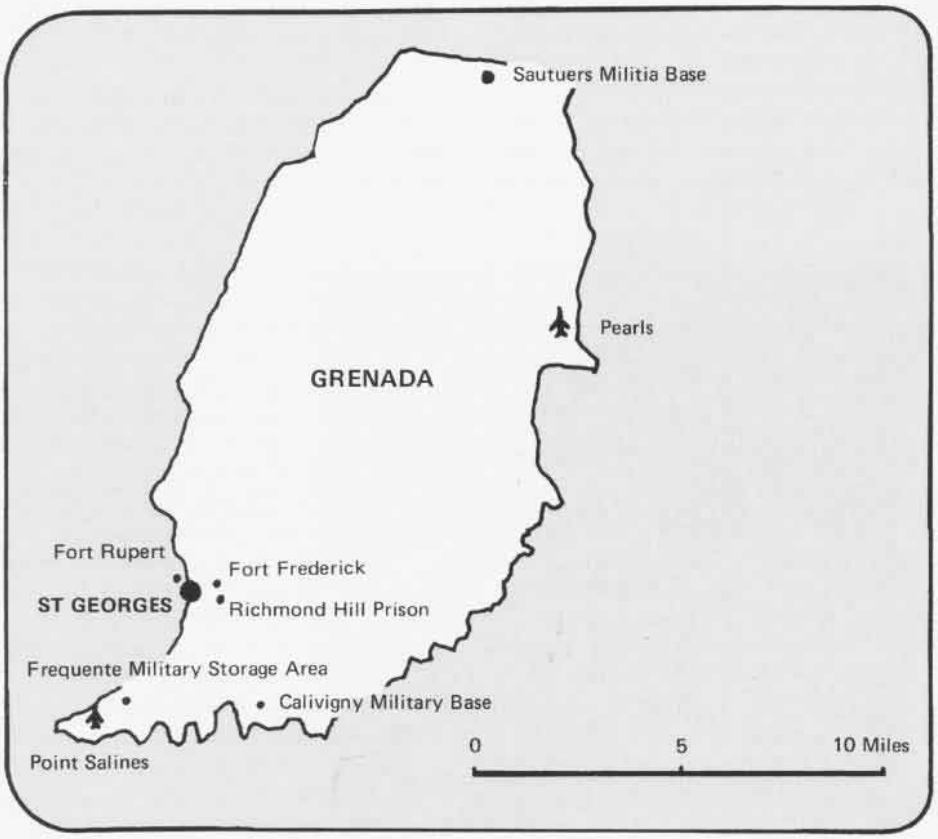
Since *Urgent Fury* involved all four U.S. services, Grenada was divided in half. The Navy and Marine Corps took the north while the Army and Air Force seized the south.

"As it turned out, the north was relatively quiet and the south was where most of the action was," said Cdr. O'Brien.

At 0500 on October 25, about 400 Marines piled into helicopters aboard the amphibious assault ship *Guam* (LPH-9), one of the 11-ship task force, and pounced on Pearls Airport. They met little resistance and secured the area within hours.

While the Marines were advancing south from Pearls, about 500 Army Rangers were dropped from Air Force transport planes over Point Salines airfield amid a barrage of antiaircraft and machine gun fire. The Rangers managed to secure the airfield so that Air Force C-130s could land and deplane reinforcements and equipment. But more than 100 well-armed Cuban and Grenadian soldiers kept the Rangers occupied most of the morning. Radio Free Grenada reported that the enemy had been ordered to "fight to the last man," and the island's defenders appeared to be taking this literally. Resistance was so stiff in the south that enemy antiaircraft artillery (AAA) shot down a U.S. helicopter that was flying close air support. Fearing heavy casualties, the Rangers called in *Indy's* A-7s.

Several miles north, Cdr. O'Brien was leading a division of four A-7s against enemy positions near Fort Frederick and Richmond Hill. They had destroyed an enemy headquarters building, AAA battery and an ammunitions storage



An Indy A-7 Corsair II loiters over the Point Salines airfield during Operation Urgent Fury.

"Although the ground troops in Grenada deserve the most credit, we (CVW-6 and Indy) played a strong supporting role." —Cdr. Michael O'Brien

facility with Mk 82 500-pound bombs, *Rockeyes* and 20mm fire before being called to Point Salines. The *Corsair IIs* arrived within minutes and strafed the enemy's positions. During one pass, Cdr. O'Brien pressed the trigger of his 20mm gun and with "superior accuracy" destroyed one enemy AAA installation. VA-15 and 87 firepower was so effective it enabled the Rangers to overrun most of the enemy's defenses around Point Salines by evening.

In addition to capturing several hundred prisoners, U.S. troops found numerous Soviet and Cuban-made weapons, ammunition and equipment. By week's end, American soldiers discovered enough weaponry to equip two Cuban infantry battalions for more than a month. These items included Soviet BTR-60 armored personnel carriers, 23mm antiaircraft guns, 82mm mortars, rocket-propelled grenades, AK-47 assault rifles, miscellaneous sidearms, hand grenades, and sophisticated communications gear.

Following action at Point Salines, VA-15 and 87 pilots quelled enemy gunfire around the St. Georges Bay area where two AH-1 *Cobra* gunships were shot down.

"It was an exciting flight," said O'Brien, who received an Air Medal for his performance that day, "because we were flying back and forth from one urgent situation to another. I found out weeks later that VA-87 and VA-15 attack aircraft were quite helpful to the soldiers on the ground...that we helped a great deal in hitting and shutting down the enemy's guns."

O'Brien added that the A-7s arrived at the St. Georges Bay area minutes after they were called in to assist the *Cobras*. Although the enemy's AAA was poor against A-7s flying up to 500 knots (the guns weren't radar-directed), it was deadly effective against helicopters flying about 100 knots. In fact, by the end of the seven-day operation, several Navy, Marine Corps and Army helicopters were shot down by antiaircraft batteries.

At 0500 on October 26, Cdr. O'Brien climbed into his *Corsair II* and launched from *Indy* along with his wingman, Lieutenant D. M. Nehilla. They were called in to assist the 2nd Battalion, 325 Infantry, which was engaged in heavy automatic weapons fire with more than

100 Cuban and Grenadian soldiers. The enemy occupied a barracks building several miles north of Point Salines airport, and all U.S. Army attempts to conquer it failed.

Captain Pieter M. Velzeboer, a Marine Corps forward observer working with the U.S. Army unit, coordinated communication with the two A-7s. According to a letter he wrote to VA-87, lauding their assistance, Capt. Velzeboer said Cdr. O'Brien and Lt. Nehilla "came out of nowhere and strafed the target.

"Their discipline and fire control were superb, and their accuracy was awesome," wrote Velzeboer, who received the Bronze Star for coordinating the strike. The action of the two aircraft resulted in 34 casualties and the surrender of 86 others. "[They] directly caused the Cuban garrison to surrender and allowed for the capture of hundreds of weapons and a large ammunition stockpile. [Cdr. O'Brien and Lt. Nehilla] made a difficult job quite easy."

After the A-7s finished strafing the target with 2,000 rounds of 20mm fire, O'Brien was told that the trounced enemy soldiers waved a white flag from the barracks window.

"We felt good to be called in to help resolve the situation," he said. "Throughout [*Urgent Fury*] the only tacair that was operating around the island was Navy tacair. That showed once again the flexibility and mobility of naval tactical aviation. It can provide a lethal punch in a hurry." According to Cdr. O'Brien, *Indy's* attack aircraft were airborne over Grenada and in daily communications with the land forces. "We would send up several A-7s from VAs 15 and 87, and some A-6s from VA-176. We would fly to specific stations near the island where we thought we would be needed, and wait to be called in by the ground troops. It went on like this for seven days with most of the heavy fighting going on during the first three. After the third day, we helped flush out some small remaining pockets of Cubans who had fled into the hills."

O'Brien remarked that VAs 15 and 87 played an equal role in Grenada. "CVW-6 had about 700 sorties overall during the seven-day period and a large portion of them were spent by attack aircraft," he said. "VA-87 and VA-15 flew about 150 sorties apiece and were involved in the same types of missions."

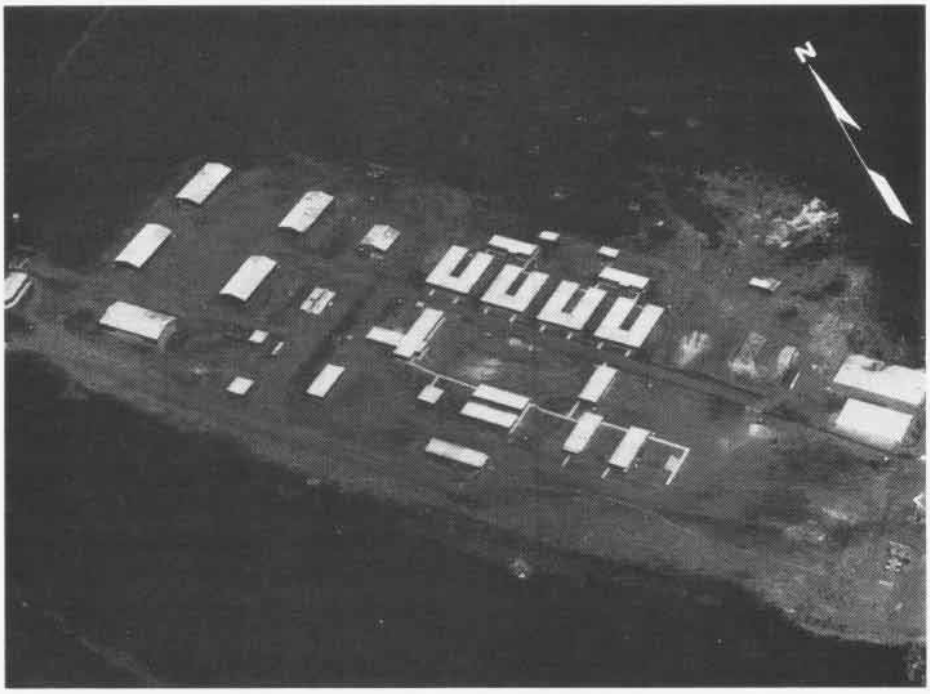
In addition to equal flight time, the *Corsair II* squadrons together dumped about 40 Mk 82 500-pound bombs, 30 Mk 20 *Rockeyes*, and more than 32,000 20mm rounds of ammunition on enemy targets.

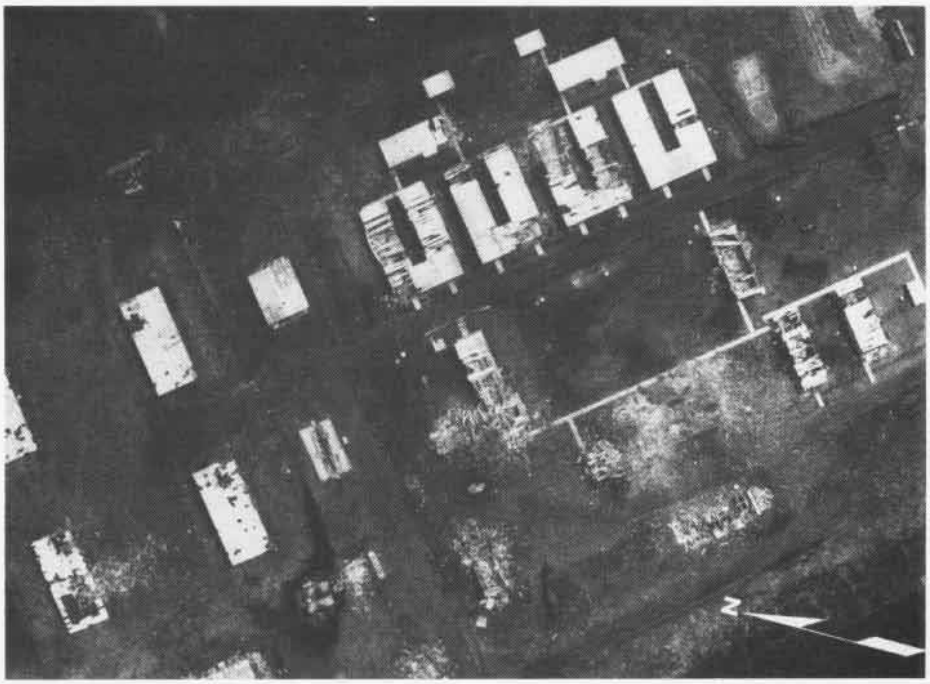
"We [VAs 15 and 87] were well integrated," O'Brien said. "For instance on many strikes, VA-15 aircraft would fly on VA-87's wing and VA-87 would fly on VA-15's wing."

The attack against the Calivigny military barracks on October 27 was a good example of the squadrons' integrated effectiveness. Four A-7s from each squadron participated in that air assault which, according to O'Brien, was *Urgent Fury's* last serious attack mission.

Calivigny military barracks was a terrorist/guerrilla warfare training camp, which Cuban troops were using to fend off attacking U.S. troops. They put up stiff resistance until *Indy's* attack aircraft leveled many of the buildings with Mk 82s and Mk 20s. What buildings VAs 15 and 87 left standing were riddled with more than 7,000 20mm rounds of ammunition. The attack resulted in several large explosions and fires, which indicated some of the barracks were being used for storing ammunition.

"We did a real nice job on that place," said Cdr. O'Brien. "Halfway through the mission, however, we had to strafe the trees surrounding the barracks, because some soldiers escaped into the brush and





The above photographs show the Calivigny military barracks before and after Indy's attack aircraft bombed and strafed it on October 27, 1983.

Cdr. Michael O'Brien

"...our involvement in Grenada proved that combat readiness is a day-to-day necessity."

later fired on U.S. helicopters that came into range."

According to Cdr. O'Brien, the *Corsair IIs* were involved in more combat in Grenada, as opposed to the A-6 *Intruders*, because of the A-7's 20mm gun and weapons system. The A-6, which lacks a 20mm gun, is suited for making large ordnance deliveries at night and in bad weather. Although neither of these missions were required in Grenada, VA-176 *Intruders* did participate in daylight bombings and assisted *Indy's* F-14s in conducting nighttime reconnaissance flights over the island. Using their sophisticated radars and infrared detection equipment, the A-6s and F-14s were able to locate enemy targets which were later attacked by U.S. ground troops and *Indy's* A-7s. In addition, VF-32's *Tomcats* provided area commanders with more than 20 miles worth of high-quality photographs of Grenada which were analyzed for targeting and bomb assessment.

"They [VFs 32 and 14] also conducted 24-hour combat air patrol, just in case any suspicious air contact came too close to the carrier battle group," said O'Brien.

He added that initially *Indy's* attack pilots were worried the enemy might have surface-to-air (SAM) missiles.

"We figured that since they had so much military equipment, it would make sense to have some of the hand-held SAMs that were later shot at us in Lebanon," he said. "As it turned out they didn't have any missiles and that changed the character of our operations considerably."

Although the A-7 pilots assumed their Cuban/Grenadian opposition did not have SAMs, they took precautions. These precautions included loitering at safe distances away from the island and maintaining high speeds.

"The [U.S. ground forces] told us that every time we flew over a target, the enemy shot at us," said O'Brien, "but it was mostly small arms fire and none of our attack aircraft took any hits."

On October 29, most of the American students on Grenada were safely back in the United States praising the U.S. military for rescuing them from possible captivity. U.S. ground troops numbered nearly 6,000 by that time, and had secured most of the island at the cost of 19 dead, 87 wounded. The enemy, a small element of which was continuing to resist capture, had suffered about 70 dead and 396 wounded.

"It was very gratifying for me as C.O. of VA-87 to see the CVW-6 team come together on such short notice and make a very significant contribution in *Urgent Fury*," said O'Brien, who commanded VA-87 from January 1983 to June 1984. "It was an exhilarating mission and everyone was pumped up. For instance, after every sortie, crewmen would swarm around our planes to see if we dropped the ordnance they loaded. If the ordnance was gone, they would be excited because they knew it had been used in a real situation."

Added O'Brien, "Although the ground troops in Grenada deserve the most credit, we [CVW-6 and *Indy*] played a strong supporting role."

In an article published in *Indy's* newspaper, *The Guardian*, on November 5, 1983, Colonel J. P. Faulkner, then Commander 22nd Marine Amphibious Unit, concurred. "We [Marines] couldn't say enough about the air support *Indy* provided," he said. "We knew [they] were there whenever the call went out."

According to O'Brien, *Indy* and CVW-6 were at their "peak" in combat readiness when they were detoured to Grenada, because both had recently finished spending several months on predeployment exercises. In fact, VA-87 had spent several weeks at the target range in Pinecastle, Fla., practicing ordnance deliveries in preparation for possible close air support operations in Lebanon.

"As it turned out we went to Grenada first, and that's exactly the kind of real training we needed," said Cdr. O'Brien. "Having done [combat air support] there helped the squadron in Lebanon."

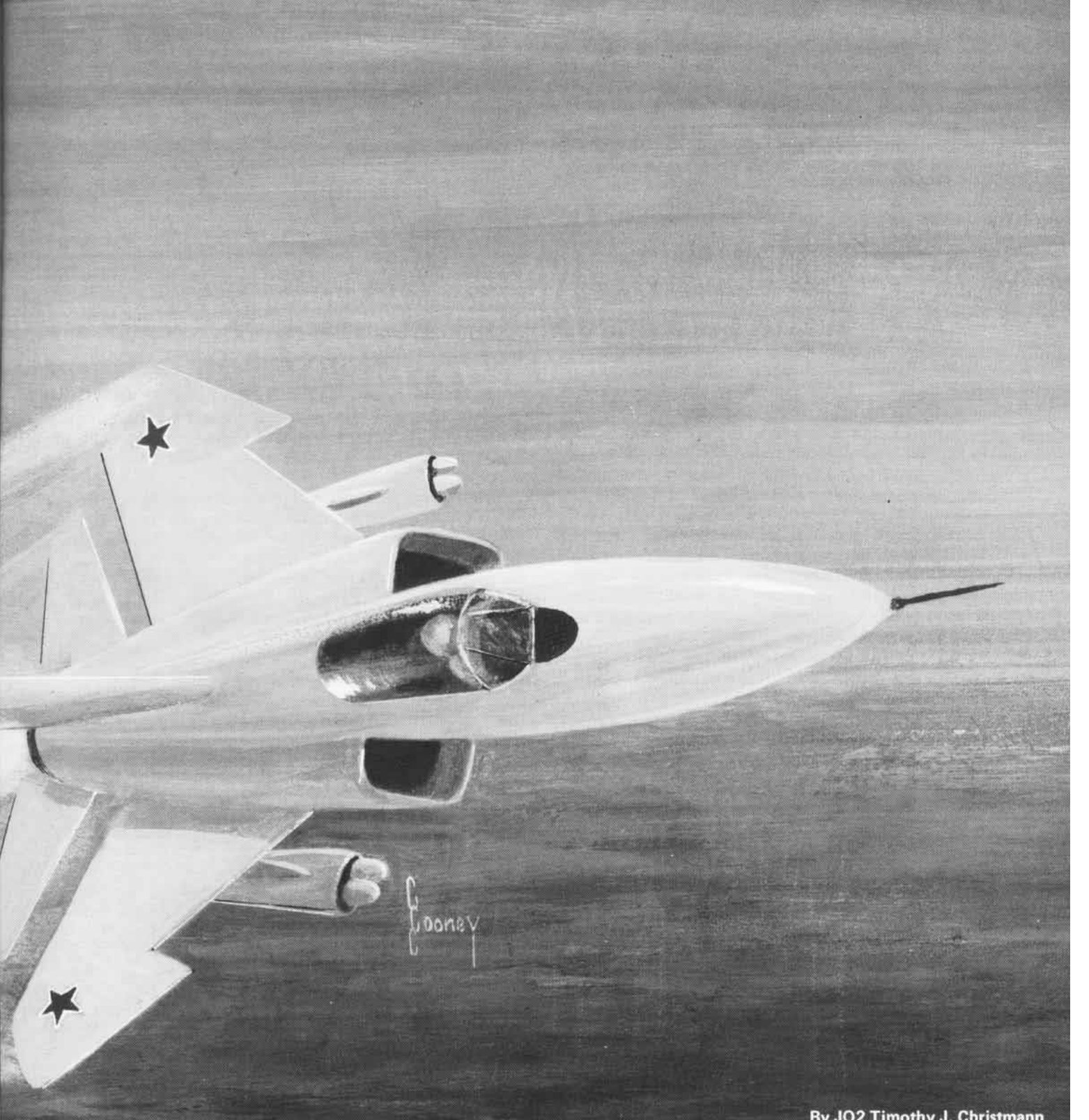
On December 4, 1983, VA-87 aircraft participated in America's first air strike in Lebanon. Ordnance was dropped on several Syrian-held artillery positions and all aircraft were recovered safely despite being barraged with some 40 surface-to-air missiles.

"Lebanon was a whole different operation...a high intensity operation which was a little bit more uncertain as far as what our role would be," said O'Brien, who currently works with the Strategics Concept Group at the Pentagon, in Washington, D.C. "Nevertheless, Grenada prepared us to handle the strike. By then my pilots thought they were combat veterans — and rightly so. They performed well in Grenada."

If the Grenada operation taught Cdr. Michael O'Brien anything it was *never doubt the importance of combat readiness*. "Usually before every major training exercise a squadron or ship commanding officer will say training is important because it keeps you at your peak," he said. "But sometimes those words have a hollow ring because you know you're just going on another routine training exercise. Well, our involvement in Grenada proved that combat readiness is a day-to-day necessity. The mission was totally unexpected, but [*Indy* and CVW-6] were ready at a moment's notice. We went down there prepared and did the job right." ■

Kremlin Due to Operate by 1990

Soviet "Supercarrier" Construction Continues



By JO2 Timothy J. Christmann

"The flag of the Soviet Navy flies over the oceans of the world. Sooner or later, the U.S. will have to understand it no longer has mastery of the seas."

—Sergei G. Gorshkov, Commander in Chief of the Soviet Navy

The Soviet Union, a country that once condemned the U.S. Navy's large-deck aircraft carriers as obsolete and too expensive, will launch its own 65 to 75,000-ton behemoth by the end of the decade, according to Naval Intelligence.

The Soviet's first steam catapult-equipped, conventional takeoff and landing "supercarrier," presumably called *Kremlin,* has been under construction at the Nikolayev shipyard on the Black Sea since 1979. It is expected to undergo sea trials as early as 1988 and become fully operational by 1990.

"In the past six months, construction of the carrier has continued steadily," said Rear Admiral John L. Butts, who retired as Director of Naval Intelligence on September 30. "While there are many uncertainties as to its final [flight deck] configuration, we believe it is about 1,000 feet long and should displace 65 to 75,000 tons [or about equal in size to USS *Midway*]. We continue to estimate it will incorporate

nuclear power along with fossil-fuel supplementary power, and will embark 35 to 60 aircraft."

Although Naval Intelligence is uncertain of the mix of aircraft the Soviets will use, it expects *Kremlin's* air wing to consist of fighter-interceptor (or fighter-attack), airborne early warning, antisubmarine warfare, reconnaissance and utility aircraft.

Likely candidates for the fighter-interceptor role are the new all-weather Su-27 *Flanker* and the MiG-29 *Fulcrum,* which possess true look-down/shoot-down capabilities enabling them to destroy low flying targets like cruise missiles.

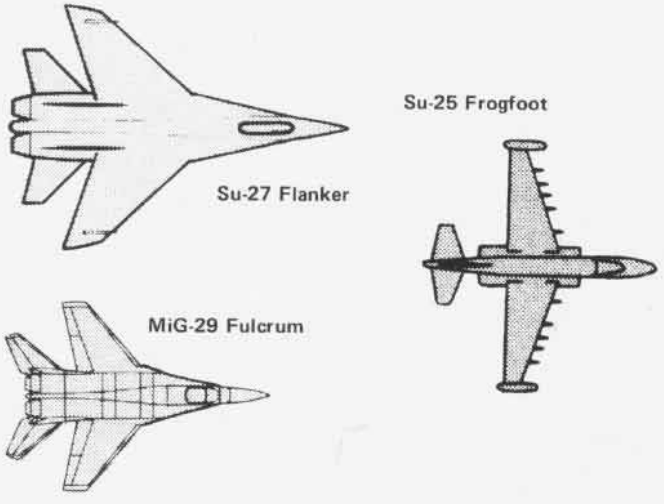
According to *Soviet Military Power,* a U.S. Department of Defense (DoD) yearly publication, the *Fulcrum* is a single-seat, twin-engine fighter similar in size to the U.S. Air Force F-16 *Falcon.* It is estimated to reach speeds up to Mach 2 and have an operating radius of about 500 miles. In addition to being a fighter-interceptor, however, the *Fulcrum* may be configured for ground attack missions. According to DoD, more than 30 MiG-29s are already operational in the Soviet air force.

Compared to the *Fulcrum,* the Su-27 *Flanker* is a larger single-seat, twin-engine fighter-interceptor similar in size to the U.S. Air Force F-15 *Eagle.* It is estimated to reach speeds up to Mach 2 and have an operating radius of about 715 miles.

The *Flanker* and *Fulcrum* are thought to be highly maneuverable aircraft capable of being equipped with six to eight much improved AA-10 air-to-air radar medium range (30 to 50 miles) missiles. However, the Su-27 may also be configured to carry up to 12 500-pound bombs.

In addition to the *Flanker* and *Fulcrum,* the Su-25 *Frogfoot* may also be a candidate for *Kremlin's* air wing. As a single-seat attack aircraft similar to the U.S. Air Force A-10 *Thunderbolt,* the Su-25 has been used extensively in Afghanistan to support Soviet Ground troops. The *Frogfoot* is estimated to carry a payload exceeding 8,800 pounds, fly some 500 miles per hour, and include a combat radius of more than 300 miles.

In order to prepare the Soviets for operating off their first catapult and arresting gear-capable aircraft carrier, they have been actively involved in a test and evaluation program at Saki naval air base near the Black Sea. There, the Su-27, MiG-29 and the Su-25 are supposedly practicing carrier operations on an outlined 975-foot training flight deck. Included at this facility are two ski-jump ramps (a possible flight deck option), arresting gear and aircraft barricades. The catapults, however, remain under construction.



In addition to the potential carrier takeoff and landing aircraft, Naval Intelligence believes an upgraded version of the vertical takeoff and landing (VTOL) Yak-36 *Forger* may augment the ship's air arm.

"The upgraded *Forger* [which is expected to become operational in the next two years] will probably have increased performance, payload, endurance and Soviet state-of-the-art avionics," said RAdm. Butts, who was appointed Director of Naval Intelligence in 1982. "This may include a combat air-to-air capability with new missiles."

Currently, the *Forger* is used aboard all three of the Soviet's 900-foot, 37,000-ton *Kiev*-class tactical aircraft-carrying cruisers. A ship/ground attack, daylight interceptor, the Yak-36 is supposed to have an operational radius of 125 nautical miles, reach speeds in excess of Mach 1 and carry an assortment of bombs, rockets and missiles. But since its arrival to the Soviet fleet in 1976, the *Forger* seems to have fallen short of fulfilling these expectations. Nevertheless, it has provided the Soviets a fixed-wing capability that they lacked prior to 1976.

"Although its performance and endurance are limited, the *Forger* does pose a serious threat to Western maritime patrol aircraft operating in range – about 100 miles – of a *Kiev*-class carrier," according to RAdm. Butts. "When you consider it was the Soviet Union's first carrier-borne airplane, the *Forger* markedly enhances Soviet war-fighting potential at sea. However, it still is no match for our carriers' tactical aircraft, and has a very limited strike capability."

According to Naval Intelligence, *Kremlin* will use variants of the Ka-27 *Helix* helicopter to provide airborne early warning, antisubmarine warfare, reconnaissance and utility missions.

Primarily an antisubmarine warfare aircraft, the *Helix* is an advanced replacement for the Ka-25 *Hormone,* the Soviet navy's first shipboard helicopter. Aside from having superior speed and endurance, the Ka-27 has a better airframe and more modern avionics than the Ka-25. And, in addition to augmenting *Kremlin's* air wing, the *Helix* will probably replace the *Hormone* aboard the *Kiev*-class carriers, *Moskva*-class helicopter cruisers and other surface vessels. Naval Intelligence estimates that more than 50 Ka-27s are already operational.

In addition to its high-performance aircraft, *Kremlin* will be adorned with air defense gatling guns, surface-to-air missiles and possibly antiship cruise missiles, according to RAdm. Butts. "We just don't have enough information yet to evaluate the full complement of weapons systems," he said.

When asked to compare the potential mix of Soviet carrier aircraft to the air arm aboard American flattops, RAdm. Butts remarked that Russia has "considerable ground to make up in both carrier hardware and operating procedures.

"After all, we've had a four-decade head start in shipborne aviation," he said. "Also, we've employed our aircraft carriers in combat. . .experience the Soviets still don't have."

Butts added that Russia's lack of experience in carrier construction, air wing deployment and battle group operations will delay their achieving "any reasonable standard of proficiency with their new carrier until at least the mid-1990s."

Unlike U.S. Naval Aviation, which gained its proficiency gradually, beginning with flying a 50-horsepower *Curtiss* biplane off the bow of an anchored ship in 1910, the Soviets are attempting to conquer carrier aviation with high-performance aircraft. Because of this, RAdm. Butts envisions *Kremlin's* growing pains to be severe and prolonged. "I am sure there will be personnel and material failures, some serious,"

he said.

According to Rear Admiral Jerry O. Tuttle, Naval Inspector General, one of the most difficult obstacles the Soviets must overcome is the use of the catapult.

"Catapults and arresting gears are large, rough, complex and simultaneously delicate mechanical systems which present operational and training challenges that will take the Soviet navy years to master," he said. "No less a problem in breadth, depth and time will be the development, testing and operation of multimission-capable, fixed-wing aircraft for Soviet naval aviation. This is a monumental development, training and doctrinal problem which will take the remainder of this century at a minumum for them to solve."

"...the political impact of a Soviet carrier battle group ...is a disturbing prospect." **—RAdm. John L. Butts**

Admiral James L. Holloway III, USN(Ret.), a Naval Aviator who served as Chief of Naval Operations from 1974 to 1978, said that another demanding obstacle for the Soviets will be training flight deck crews who must maneuver 25-ton aircraft on grease-soaked decks with 35-plus knot winds while avoiding searing jet blasts. "Although they may have written instructions on just how to do it, and watch detailed movies of U.S. flight deck operations, they will still have no experienced petty officers who have actually hooked up a jet fighter on the catapults or chocked up a tactical bomber on the bow of a heaving deck," he remarked. "No amount of book learning or simulation is going to make up for their lack of experience among their enlisted people."

However, Adm. Holloway said the Soviet navy's one advantage in transitioning to conventional deck operations is that it has closely observed U.S. Navy carrier flight operations for years. "The Soviet navy trawlers that maintained a presence in the Gulf of Tonkin in the vicinity of Yankee Station over the entire period of our Vietnam carrier operations, recorded both optically and electronically every aspect of our carrier operations. This included the conversations among flight deck crews on the 'Mickey Mouse' communication devices," he added. "The Soviet navy will be relatively up to date on the latest and most modern operating procedures for air operations around the carrier."

Unlike the other admirals, Admiral Thomas B. Hayward, USN(Ret.), said there is no reason to forecast that the USSR will have any unusual growing pains learning how to operate from a catapult and arresting gear-equipped aircraft carrier.

"Since they are starting from scratch, except for the level of experience gained with the *Kiev*-class carrier, one can anticipate that they [the Soviets] will proceed with discretion and safety," added Hayward, a Naval Aviator who served as Chief of Naval Operations from 1978 to 1982. "If their learning experience with the *Kiev* carrier is any measure, the initial operations will appear basic and rudimentary to us, as they seek to put into practice that which they have learned watching the U.S. Navy for so many years."

He said that there is no reason to anticipate a Soviet breakthrough in operational doctrine or procedures, and that their all-weather night operations will evolve slowly. But Adm. Hayward added that "it would be wishful thinking" to assume the USSR will experience difficulty training their pilots in large-deck carrier operations. "It will take time, but they will do it," he said.

Despite the problems which may befall them in perfecting their largest and most expensive warship, the Soviets eventual ability to operate high-performance aircraft at sea will have many rewards. In addition to the increased capability of protecting their 79 precious ballistic submarines from antisubmarine warfare forces, the Soviets will be able to expand their wartime operating area beyond the range of friendly land-based aircraft, and will further threaten U.S. maritime forces.

"Additionally, the peacetime utility of the Soviet fleet in the 1990s will enhance Moscow's opportunities for spreading its influence and engaging in coercive diplomacy," said RAdm. Butts. "Moscow will continue to probe for additional access to overseas facilities [and] successes in this endeavor will enable the Soviets to more easily sustain distant naval deployments, place them within striking range of additional Western sea lanes and facilities, and create new opportunities to destabilize key nations in the third world."

He added that *Kremlin* — together with other military improvements — will give the Soviets a better capability to project power ashore against all but the most well-armed regional power by the early 1990s.

"No successful amphibious operation can be conducted without local air superiority," said Adm. Holloway. "The Soviets have a growing amphibious force and increasing opportunities to deploy their naval infantry [some 16,000 troops] outside of the conventional boundaries of Soviet influence. Such operations require air support and their large-deck carrier can provide this kind of support for contingency operations (i.e., assisting the presence of Soviet forces or allies engaged in 'wars of revolution')."

Added RAdm. Butts, "Even under relatively benign circumstances, the potential political impact of a Soviet carrier battle group steaming in, say, the Arabian Sea is a disturbing prospect."

According to Naval Intelligence, *Kremlin* will probably be home-ported with the Northern Fleet (headquartered at Severomorsk) and will most likely assist Soviet sea control operations in the Norwegian/Greenland Seas, Sea of Okhotsk, Sea of Japan and the northwestern Pacific. These are areas where, in time of war, the USSR would probably try to hide and protect a majority of its ballistic missile submarines. The carrier will operate with an assortment of the most modern attack submarines and guided missile cruisers/destroyers.

"Naturally, the [Soviets] have some flexibility [with this carrier]," said RAdm. Butts, "[like] changing the disposition with the evolving threat, availability of ships, and mission of the battle force. The carrier will also need support ships [i.e., oilers]; even nuclear carriers need fuel to fly their aircraft."

Adm. Hayward remarked that until the Soviets obtain several carrier battle groups, U.S. naval strategy will not be "significantly impacted.

"Unless the Congress of the United States fails to support the U.S. Navy's policy of maintaining a relatively large number

According to RAdm. Jerry Tuttle, the bow section of the Kiev-class ship is "clearly the business end."

of carrier battle groups into the future, [America] will maintain a dominant capability to deal with any surface combatant in any waters worldwide," said Adm. Hayward. "However, if the relative superiority among surface battle forces, which the United States presently enjoys, is permitted to erode significantly, U.S. naval tactics and doctrine will undergo dramatic change."

Admiral Thomas H. Moorer, Chief of Naval Operations from 1967 to 1970 and Chairman of the Joint Chiefs of Staff from 1970 to 1974, agreed that the employment of *Kremlin* will not change the overall strategy of the U.S. Navy. "However, it will change the priority of surface targets in that the enemy carrier must be destroyed first in any action. From the Soviet standpoint, the employment of the large carrier will simply give them more flexibility and, in my opinion, tempt them to accelerate their current strategy of expansionism."

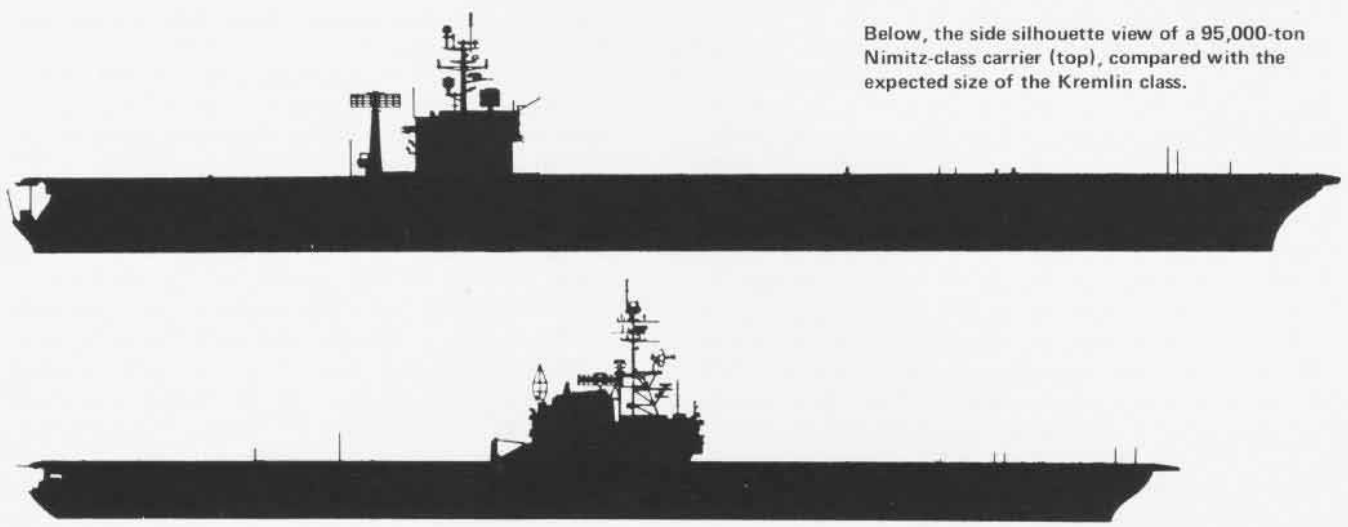
However, it is not as important how the Soviets intend to employ *Kremlin,* but the potential capabilities it could provide, such as local air superiority, antisubmarine warfare, attacking surface vessels beyond the range of their antiship missiles, providing close air support for troops ashore, conducting mine and mine countermeasures operations, providing interdiction strikes on land installations, etc.

"I foresee the Soviet navy continuing to expand the employment of tactical aviation at sea by utilizing various classes of ships to operate the different kinds of tactical aircraft – helicopters, jet V/STOL and high-performance tactical fighters and support aircraft – just as the U.S. Navy does," said Adm. Holloway. "We must remind ourselves that there are few areas of the U.S. fleet that are not equipped to effectively utilize Naval Aviation."

In the distant future, a force of large-deck Soviet aircraft carriers could threaten the U.S. Navy's maritime supremacy, he added.

"Today, our war plans do not have to take into consideration the threat of tactical aviation in areas remote from Russian or Warsaw Pact bases," said Holloway. "With the addition of a sea-based Soviet tactical air capability, a whole new threat area must be considered and defensive measures undertaken. It will drastically complicate the task of U.S. strategic planners, just as the potential of the U.S. Navy's carrier strike force has for years complicated the Soviet's overall war-fighting plans."

RAdm. Tuttle, a Naval Aviator who was Commander Battle Force Sixth Fleet prior to assuming his present position, described the U.S. Navy carrier battle group as an awesome force of massed power necessary for a variety of national purposes. "This is in very large measure due to the long evolution of U.S. aircraft carrier classes, carrier capable multimission aircraft and the dedicated, highly trained crews who man them," he said. "While the U.S. did not invent all of the unique equipment necessary for a variety of fixed-wing aircraft



Below, the side silhouette view of a 95,000-ton Nimitz-class carrier (top), compared with the expected size of the Kremlin class.

to operate from a seagoing flight deck, our Navy has unquestionably carried the integrated development of a cohesive, orchestrated and very powerful whole to heights undreamed of by the early developers of this hybrid weapon system."

The aircraft carrier's major role in Western tradition has been power projection, according to RAdm. Tuttle. "This is in keeping with the U.S. Navy's mission under Title 10 U.S. Code, to conduct prompt and sustained combat operations at sea in support of national policies," he said. "In this sense, and given today's high-tech military capabilities, the aircraft carrier and its main battery, the embarked and versatile [90-plus plane] air wing, is the ultimate integrated weapon system which can bloody an opponent with conventional weapons throughout the world on *very* short notice."

Aircraft carriers in the Soviet tradition, however, have evolved as a function of strategy and plans, according to Tuttle. "Thus, *Moskva, Kiev* and follow-on class designs are and will be optimized for defense of the Soviet homeland, maritime perimeter defense and ASW protection of the Soviet strategic reserve forces [i.e., ballistic submarines]."

"From the Soviet standpoint, (Kremlin) will give them more flexibility and tempt them to accelerate their strategy of expansionism."

—Adm. Thomas H. Moorer

The *Moskva*-class helicopter cruiser, which includes a cruiser configuration forward and a helicopter deck aft, is considered the Soviet's first aviation ship. Two of these 620-foot-long, 17,000-ton vessels, *Moskva* and *Leningrad,* were built in the late 1960s to counter some 41 U.S. *Polaris* nuclear submarines. Armed with up to 14 antisubmarine *Hormone* helicopters capable of carrying bombs and torpedoes, these ships helped prove to the USSR the value of sea-based aviation. Though they recognized the *Moska's* effective though limited capabilities, the Soviets took notice of the value of U.S. aircraft carriers. Before the 1970s, Soviet criticism toward American flattops waned as carrier participation in Vietnam and scores of other minor successful crisis management situations forced Admiral S. G. Gorshkov, Commander in Chief of the Soviet Navy, to encourage the construction of Russia's first "aircraft carrier."

In May 1975, the first vertical takeoff and landing *Kiev*-class tactical aircraft-carrying cruiser was placed into service. Today, three of these ships (*Kiev, Minsk* and *Novorossiysk*), which feature a starboard island structure and angled flight deck, are the largest in the Soviet navy. The fourth, and presumably last *Kiev*-class vessel (said to be called *Kharkov*), is expected to be operational before 1988.

Aside from carrying 14 to 17 *Hormone* and *Helix* helicopters and 12 to 14 Yak-36 *Forgers,* the *Kiev's* weapon inventory bristles with antiship cruise missiles, more than 100 long and short-range surface-to-air missiles, and air defense gun batteries.

"[Since their development in the mid-1970s], the *Kiev*-class carriers have provided the Soviets valuable experience to apply to the development of their new [large-deck] aircraft carrier," said RAdm. Butts. "Also, *Kiev* is a much more capable ASW platform with greater endurance than the earlier *Moskva*-class, a much more capable air defense platform, and a formidable-looking ship for naval diplomacy — showing the flag."

Adm. Hayward called the *Kiev*-class ships "excellent. Many navies in the world could use a ship of this category, including the U.S.," he said. "However, to compare it with a U.S. Navy carrier is disingenuous. The *Kiev* is much more like the Royal Navy *Invincible* class, though it contains considerably more overall firepower."

Besides the limitations in aircraft performance, the *Kiev*-class carriers are inferior in size, steaming endurance and offensive punch when compared to U.S. Navy flattops.

"The bow section is clearly the business end of the ship," said RAdm. Tuttle. "The [*Kiev's*] flight deck and aircraft are experiments whose mission and functions are still in the [operational] test and evaluation stages."

Adm. Moorer agreed. "[The Soviets] are simply following a long-range goal of developing and operating large aircraft carriers and the VTOL [*Kiev*] was nothing more than a learning step toward the achievement of this goal."

According to Moorer, the Soviets will continue building carriers like *Kremlin* because of the lessons learned from the Cuban missile crisis in October 1962. "[That crisis] taught the Soviets that surface ships cannot operate without air cover, and lacking air cover they must remain within the envelope dictated by fighter defense range or be forced to withdraw," he said.

According to Adm. Holloway, the Soviets thought *Kiev* would be adequate for their tactical and strategic needs. Two factors, however, convinced them that it was not. "First, today's technology cannot provide a V/STOL or VTOL tactical fighter that is operationally competitive with conventional designs," he said. "Consequently, the air wings of the *Kiev*-class ships were useful only in a relatively benign air environment. The second factor is the continuing expansion of Soviet strategic ambitions. No longer is the Soviet military satisfied with merely interdicting U.S. naval capabilities. The Russians want to be able to project their presence overseas into areas more remote from Continental Russia."

Since *Kiev* can't perform this task adequately, the large-deck carrier is the key to Soviet ambitions, added Adm. Holloway.

Although the Soviet navy has been observing U.S. carrier aviation closely since the 1960s, RAdm. Tuttle believes that "watching it and doing it well are two entirely different propositions."

Like Adm. Moorer, Tuttle thinks that the construction of *Kremlin* proves the Soviet Union is committed to possessing a carrier aviation capability that may some day rival the U.S. Navy's prize 95,000-ton *Nimitz*-class supercarriers. "But I foresee a long, long time in the process for them to get there," he said. "[That's just an] operational reality which we in Naval Aviation know from long personal experience."

Whether or not the Soviet Union will ever build carriers to equal the deadly versatility of America's flattops remains to be seen. But, according to Adm. Holloway, one thing is certain: For the Soviets, a single large-deck aircraft carrier is better than none at all. ■

Restored F4U Rekindles Memories of VF-17

By JO2 Timothy J. Christmann

The VF-17 F4U Corsair look-alike arrives at the Washington Navy Yard.

JOCS Kirby Harrison

The two Navy aces squinted at the hazy afternoon sky and watched the famous gull-winged fighter plane approach.

"Isn't that something," said Ira "Ike" Kepford, marveling at the sight of an F4U-1 *Corsair* being carried onto the Washington Navy Yard in Washington, D.C., by a U.S. Army CH-54 *Sky Crane* helicopter.

Standing a few yards away, M. W. "Butch" Davenport, Kepford's friend and former squadronmate, smiled. His eyes were fixed on the *Corsair,* which dangled by cable beneath the *Sky Crane's* fuselage. The helicopter was flying so low that gusts of wind from its large churning rotors swept the vacant parking lot where the aces and about 30 others were waiting. Then, hovering, the *Sky Crane* lowered the *Corsair* gently to the ground near the Navy Memorial Museum, the plane's new home.

When the helicopter had departed, Kepford and Davenport walked over to inspect the F4U. The two aces, who had flown from their home state of Michigan in Davenport's twin-engine *Comanche* early that July 27 morning, weren't used to chasing after relics like the F4U *Corsair*. But this plane was special. It had been loaned to the Navy Memorial Museum by the Naval Aviation Museum in Pensacola, Fla., to be used as part of a WW II exhibit. But as far as Kepford and Davenport were concerned, the *Corsair* was important because it had been restored by Naval Air Rework Facility, Pensacola, to resemble the F4U their former skipper flew.

From January 1943 to May 1944, Lieutenant Commander John T. "Tommy" Blackburn commanded Fighter Squadron 17, which earned the distinction as the Navy's greatest fighter squadron for shooting down a confirmed 154 Japanese planes (or eight enemy planes for every VF-17 *Corsair* shot down) and more than 75 probables in 76 days of combat. The squadron, which flew 8,577 combat hours, also sank five transport ships and barges carrying troops and supplies. In addition, no U.S. aircraft was ever hit by enemy aircraft while VF-17 was flying cover, despite numerous missions against heavily defended Japanese strongholds like Rabaul.

Davenport and Kepford (two of VF-17's 13 aces) as well as a number of their former squadronmates believe the unit's success was largely due to Blackburn's leadership. So, when they heard the Navy Museum was interested in painting the

Corsair in the colors and markings of some top VF-17 fighter pilot, both asked the museum's curator to use Blackburn's.

"Originally we were going to paint the plane to look like Ike Kepford's [who led VF-17's sharpshooting honors by destroying 16 planes]," according to Claudia Pennington, the museum's curator. "But Kepford and Davenport felt that Blackburn was the man who deserved the most credit."

"We were fortunate to have Blackburn because he was a second generation naval officer officer who knew how to get things done," said Davenport, 67, who shot down six Japanese aircraft with VF-17. "He knew what to say and where to go to get equipment and supplies the squadron needed. This made him invaluable. You can have the best pilots and airplanes in the world, but if you can't keep them flying, you aren't worth a damn. Blackburn kept us flying."

"I felt real strong about Tom," added Kepford, 66, the Navy's fifth highest ace. "When I came to the squadron as an ensign, I didn't know anything. But Blackburn taught me a lot fast. He was a fantastic skipper."

During VF-17's reunion last year at NAS Glenview, Ill., fighter pilot Danny Cunningham said that when Blackburn didn't make admiral in the early 1960s he wrote a letter of complaint to President John F. Kennedy.

"I had all the respect and admiration in the world for Blackburn," said Cunningham, who shot down seven enemy planes. "I think our squadron was good because he trained the hell out of us. We had the best fighter plane and the best skipper in WW II."

Blackburn, now a retired captain living in Florida, doesn't downplay his contribution in VF-17's success. But he added that as C.O. he was fortunate to have a group of superior pilots and maintenance personnel.

"They were an above average group of people," said Blackburn, who is writing a book about the squadron. He added that their successful careers as civilians following WW II is a testimonial of their abilities. For example, some of the more prosperous VF-17 pilots include: Tom Killefer, who became a vice president of Chrysler; Ira Kepford, president of the Rexall Drug Company; and Tim Gile, vice president of the Morgan Guarantee Company. Others include Bitz Bitzegaio, a circuit court judge; Jack Chasnoff and Hal Jackson, lawyers; and Roger Hedrick, who is partner in a successful construction company.

Ira Kepford (foreground), the Navy's fifth highest ace, poses for a photograph with other VF-17 pilots during WW II.

"In restrospect, I sometimes wonder who was in charge, me or them," Blackburn laughed.

The former C.O. wasn't able to join Kepford and Davenport to observe the *Corsair's* delivery at the Navy Museum but said of the gesture, "I was enormously flattered."

Except for a repairable gash in one of the *Corsair's* gull wings, which occurred during the plane's airlift, the restored F4U looked identical to Blackburn's. In addition to bearing the famous *Jolly Roger* skull and crossbones insignia on the cowling, the *Corsair* had "Big Hog" written in large white letters on the vertical stabilizer and the number one on the fuselage. It also had the former skipper's name etched below the bubble canopy as well as 11 Japanese flags.

While Kepford and Davenport were looking the *Corsair* over on July 27, a bystander asked if either of them would like to fly the F4U again. But, to his surprise, they said no.

"It would be too much of a responsibility for me to jump into that aircraft today," said Kepford. "The urge is still there, but my reaction time would be terrible."

Davenport agreed. "Aviators' and athletes' reaction times stretch as they get older," he said. "This is particularly true of professional boxers. They still know how to punch, and can see the openings, but they can't respond fast enough to take advantage of it."

But Davenport, who amassed 7,500 flight hours in military aircraft during his six years in the Navy, added he's confident he could still fly the *Corsair*. "I got to know that airplane so well that I could make a good carrier approach and feel comfortable doing it," he remarked.

Unlike most of his 26 surviving squadronmates, Davenport has continued to fly since leaving the Navy in 1949. In fact, today he regularly pilots his *Comanche* around the country.

"[The plane] has navigation and flight equipment that I would have traded my soul for in WW II," said Davenport, who was one of the first naval officers to attend the Empire Test Pilot School in England. "Modern aviation equipment is far superior to anything we had during the war."

"I can't believe the technology of aircraft today," added Kepford. "Back in WW II, we had extreme limits. For instance, our planes didn't have any navi-

gation — we did it all on a plotting board on our lap."

Nevertheless, Kepford and Davenport felt fortunate in the early 1940s to have served in the war-torn Pacific with a Navy squadron that flew the F4U *Corsair.*

VF-17 was commissioned by Lt.Cdr. Blackburn on January 1, 1943, and became the first Navy fighter squadron to fight with the Chance Vought F4U-1 *Corsair.* Powered by a 2,000-horsepower Pratt and Whitney R-2800 radial engine, the F4U could exceed 400 miles per hour and was at that time the Navy's fastest warplane.

"You look at the *Corsair* today and it's just a pile of metal," said Davenport. "But when it first came out in 1942 it was revolutionary. It had six .50 caliber machine guns with 2,400 rounds of ammunition. To us, that was enough to destroy an army! As a fighting machine there wasn't a Japanese aircraft that could compare in terms of firepower and performance."

Roger Hedrick, who according to Blackburn was one of VF-17's best pilots, said that the *Corsair* was the greatest plane the squadron could have taken into combat. Hedrick, VF-17's executive officer under Blackburn, had the opportunity to fly most of the top American fighters before the squadron went to war, including the P-39, P-40 and P-51. But none were as good as the F4U.

"The only other plane I would have considered trading for the *Corsair* was the P-51, which was a beautiful airplane," said Hedrick.

Although the F4U had superior speed and firepower, it was unforgiving of a mistake, according to Blackburn. "If you let your airspeed get low at low altitude, or you banked too steeply, there wasn't anything you could do about it," he remarked. "A number of fine guys died proving this."

Originally, *Corsair*-flying VF-17 was supposed to operate off the *Essex*-class carrier *Bunker Hill* (CV-17), but instead became the Navy's first F4U land-based fighter squadron. Blackburn was disappointed leaving *Bunker Hill* because VF-17 had trained well on that ship and considered her home.

"We were very much a part of the *Bunker Hill* team and they thought very highly of us," said Blackburn. "Our squadron was sent ashore not because the airplane was defective but because of logistics. At the time we were the only squadron of Navy *Corsairs* operating west of Pearl Harbor. All other fighter squadrons were flying either *Hellcats* or *Wildcats.* It made no sense to try to supply 36 planes of one type and 500 planes of two other types, so we were pulled off and a *Hellcat* squadron put on."

USCG photo by JOCS Kirby Harrison

Ira Kepford, left, and Butch Davenport share a laugh beside a replica of Capt. Blackburn's F4U Corsair.

From October 27 to December 1, 1943, VF-17 operated out of New Georgia, in the Solomon Islands, where the Marine Corps was already flying *Corsairs* and where the supply lines were filled with F4U parts. Once operational at New Georgia, "Blackburn's Irregulars" wasted no time proving their prowess against the Japanese. The squadron's first aerial engagement on November 1, 1943, over Empress Augusta Bay cost the enemy five planes. However, this scrap was nothing compared to the battle 10 days later.

On November 11, 24 VF-17 aircraft left New Georgia to operate as a combat air patrol (CAP) for the *Essex* (*CV-9*), *Bunker Hill,* and *Independence* (*CV-22*), whose attack aircraft were going to strike Rabaul.

VF-17 arrived over the ships about 0500 and served as CAP until the first group of attack aircraft had launched, according to Blackburn. After the planes had left the carriers, the *Corsairs* were vectored to a Japanese *Tony* who was coming in to spy on the task force.

"Until then the *Tony* was our only opposition, if you can call that opposition," said Blackburn, who raced Kepford to shoot it down. "With 24 *Corsairs* after him, the poor guy didn't have a chance."

After the plane was destroyed, VF-17 aircraft landed aboard *Bunker Hill* and *Essex* while 12 *Hellcats* from VF-38, which were assisting in the CAP, went aboard *Independence.* Blackburn was particularly proud of his men, because none of them had to be waved off. They landed aboard the ships the first time despite a two-month respite from carrier operations.

A couple hours later, the 24 refueled *Corsairs* took their positions over the carrier task force. The strike group returned from their attack against Rabaul (200 miles away) and began landing.

"As we expected, the strike group was followed by about 100 Japanese aircraft [divebombers and fighters]," said Blackburn. "We [24 *Corsairs* and 12 *Hellcats*] were their principal opposition.

"Being outnumbered was nothing new and it wasn't a big cause for alarm," he added. "We were confident in our ability as pilots and in our aircraft. There wasn't any hesitation of going in and tangling with the enemy."

Blackburn said the melee was beyond description. "The carriers had to land their airplanes and the Japanese were pressing home their attack," he remarked. "Antiaircraft fire wasn't suppressed and they shot at anything in the air, including us."

In the course of the action, VF-17 pilots shot down 18 and a half planes and lost one *Corsair,* although the pilot was recovered.

"We had bullet holes in quite a few aircraft, including mine," said Blackburn, who shot down one enemy aircraft during the engagement, "but the carriers suffered no damage."

"It was an extremely long and busy day," said Roger Hedrick. "We were out there 14 to 15 hours and I think two planes had to ditch going back to New Georgia because they were low on fuel."

During the battle, Ike Kepford earned the Navy Cross for shooting down four enemy aircraft and damaging a fifth. One

of the destroyed aircraft was shot down right off the bow of *Bunker Hill* as it attempted to drop its torpedo.

From January 26 to March 7, 1944, VF-17 operated from Bougainville, a heavily jungled volcanic island in the Solomons that spans 200 miles in length and 35 in width. Unlike New Georgia, however, most of Bougainville was occupied by the Japanese.

"The Marines had just pushed the Japanese back a mile or so to give us room for three airstrips," said Davenport, who was the squadron's maintenance officer. "Consequently, we had trouble with sniper fire, particularly at night when we needed lights to work on the aircraft."

Life on Bougainville was regimented. It consisted of flying (sometimes as many as 12 hours a day), eating (everything from powered eggs to ram's tongue) and living out of tents.

"As far as recreation was concerned, exercising was nonexistent," said Blackburn. "People were content in the very hot weather to flake out in their tents after a cold shower and rest as much as possible, shoot the breeze and play cards.

"We saw movies nightly, had a couple of USO shows, had an excellent console radio which brought in Tokyo Rose every night plus the Armed Forces broadcasts, and poker and crap shooting was endemic, he added. "To be sure, we had beer and [liquor]."

On January 26, 1944, VF-17 began escorting SBDs, TBFs, B-24s and B-25s in strikes against Rabaul, where the Japanese had a large concentration of troops. Within the first five days as escorts, the squadron shot down more than 60 enemy planes.

"There were 200 miles of water between Bougainville and Rabaul that we had to fly over," said Hedrick. "And by the time we got within [50 miles] of the base, we could see the dust clouds coming up from the enemy fields as their fighters took off [to make their runs] against us."

Added Davenport, "Seeing that dust got everyone's blood pumping."

One of VF-17's most effective tactics of dealing with the enemy was using a modified "Thach Weave," a process whereby layers of fighter planes weaved back and forth over the bombers.

"We lost some of our own people, but never a bomber," Hedrick remarked. "To me that was the best record we could have obtained."

Tom Blackburn, 2nd from left in the 1st row, stands beside some VF-17 pilots during their combat tour at Bougainville. Left, VF-17's kill chart.

During bombing missions against Rabaul, the *Zero* was the best plane the Japanese could use against the *Corsair* (which they called "Whistling Death" because of the noise the aircraft made while diving). Although the *Zero* was a premier dogfighter, it lacked the F4U's armor, speed and firepower.

"One on one, the *Zero* was easy meat against the *Corsair,*" said Blackburn, who went on to command USS *Midway* in 1958. He added that in addition to speed and firepower, the *Corsair* could fly higher and longer than the infamous enemy fighter.

"The bad part about the war was that we really didn't know much about the Japanese aircraft," said Davenport. "It was like hearing all kinds of stories about the exploits of someone you have never met, until soon you think that he's invincible."

He added that to defeat the *Zero* VF-17 pilots had to adhere to the old adage of "seeing before seen.

"If the enemy saw you first and got within gun range, you were in trouble regardless of what you were flying," said Davenport. "So the best defense was to stay awake and have better eyesight than the other guy."

Davenport, who has pictures of the first Japanese pilot he shot down being rescued by a Navy PT boat, said that combat was the most exciting experience in his life. "Everything else was of little consequence compared to the challenge and adventure of getting inside a *Corsair* and going out to fight the enemy," he remarked.

Blackburn said that he was "scared as hell" and "extremely tense" in combat. "All physical movement was reflective," he added. "The passage of time was obscure and you had to concentrate so hard on the enemy that you were oblivious to anything else. Also, the adrenaline level was so high that by the end of a hop you were physically and mentally exhausted."

But the biological demands of combat helped mold VF-17 into a band of men who worked together and treated each other like family.

"There wasn't a man in that squadron who wasn't an individualist," said Kepford. "Every man was different and we had our share of arguments, but come morning patrol we were together again."

"We were far from saints and we made a lot of mistakes," added Blackburn, "but when the chips were down, we were a hell of an effective fighter team." ■

Flying the Fighting Falcon

The Navy's Future Adversary Aircraft

By Commander Peter Mersky, USNR-R

Cdr. Mersky is a Naval Reservist with an avid interest in Naval Aviation. He is a staff writer for Approach magazine and a frequent contributor to NANews. He is the author of two books on Naval Aviation, and holds a commercial pilot's license.

The F-16 *Falcon* is small but mighty. Planned for delivery to the Navy in 1987 as the next generation adversary aircraft, the F-16N is about the same size as the A-4 *Skyhawk*. But its capabilities, which have proven exemplary in combat, make the aircraft one of the best military aircraft in the world today.

The F-16 joined the U.S. Air Force's 388th Tactical Fighter Wing at Hill AFB, Utah, in January 1979. Less than two years later, Israel used the *Falcon* to destroy the Iraqi nuclear reactor. The aircraft was also used in conjunction with Israeli F-15 *Eagles* to combat the Lebanese and Syrians in recent years.

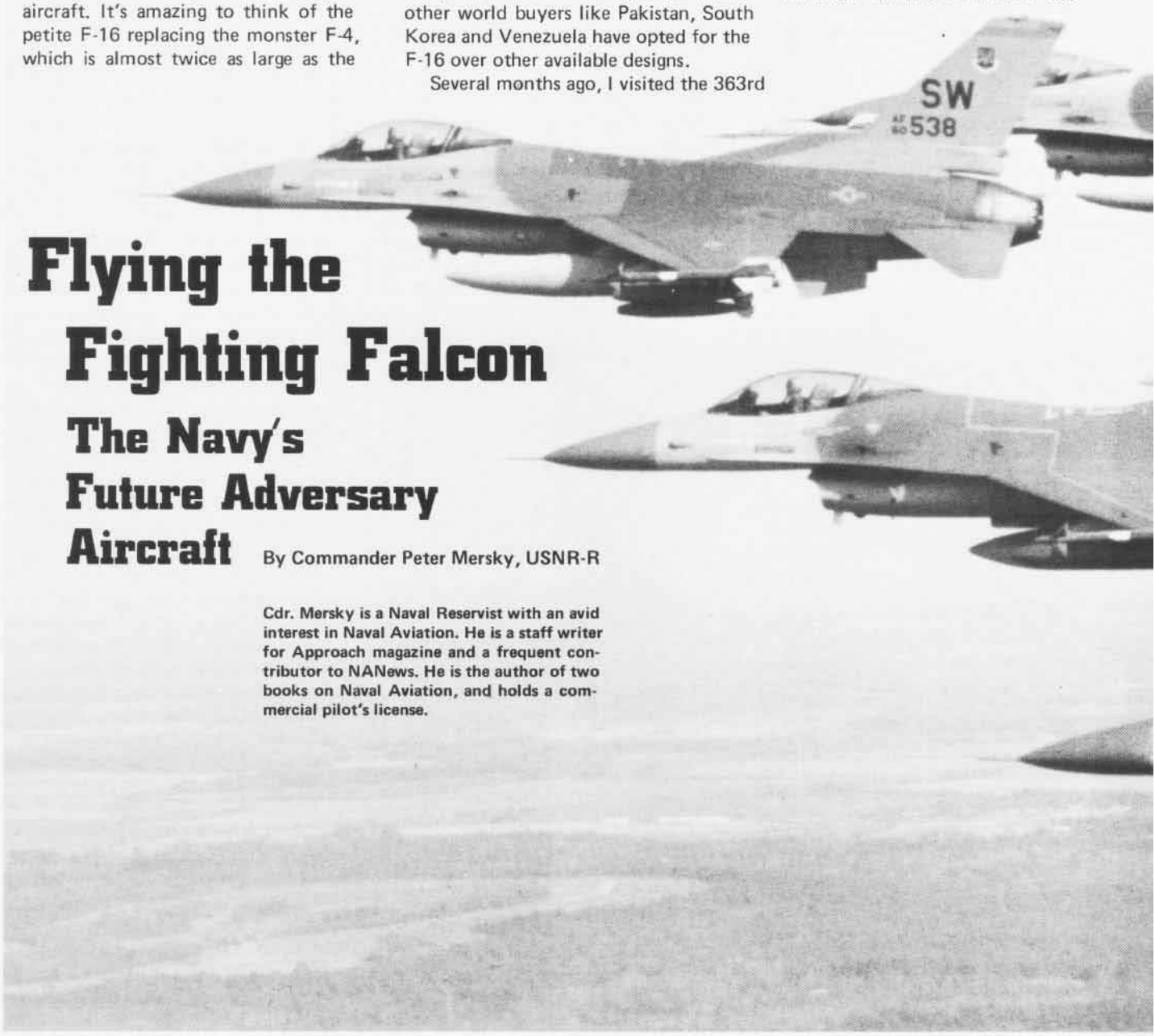
Today, the Air Force's F-16 *Falcon* is replacing the veteran F-4 *Phantom* and A-7 *Corsair II* as the primary air-to-ground aircraft. It's amazing to think of the petite F-16 replacing the monster F-4, which is almost twice as large as the *Falcon*. But the art of aircraft construction and avionics design has reached the point where a tremendous amount of capability and performance can be stuffed into a much smaller package.

Falcon drivers like the smaller target their aircraft presents and revel when their compatriots in other squadrons bemoan the difficulty in seeing the agile F-16 during air combat maneuvering training.

The oncoming F-16C and D (two-seater), as well as the radical F-16XL modified delta, will keep General Dynamics' fighter in the forefront of military aviation into the 21st century. Many NATO countries, including Denmark, Belgium and the Netherlands, have bought *Falcons* over the years. In fact, other world buyers like Pakistan, South Korea and Venezuela have opted for the F-16 over other available designs.

Several months ago, I visited the 363rd Tactical Fighter Wing at Shaw AFB, S.C., and flew aboard an F-16. Before hopping into the cockpit, however, I was given a tour of the wing's F-16 support facilities. I noticed that the engines and avionics are maintained in virtually spotless hangars and air-conditioned trailers. The trailers, I was told, can be packed up immediately and transported in C-5s anywhere in the world.

After the tour, I went inside the 19th Tactical Fighter Squadron's shack (hardly the word for such nicely appointed spaces. Even the riggers' workspaces were paneled and carpeted.). Here, I met Major Blair Ellis, B Flight Commander, who was to be my guide and mission pilot later that day. Ellis was an F-4 *Phantom* jock who had transitioned to the F-16.



I was issued flight gear and received egress training. The G-suits were comfortably snug, and the torso harness was simpler than the Navy's rig. The gray helmet was light and the sun visor was separate (like a pair of goggles), which I thought odd.

I was given a thorough rundown on the F-16A's ACES II seat. After several practice ejection sequences, I went through a preflight brief which was very lengthy and detailed.

I climbed into a two-seat F-16B with Maj. Ellis. We were to accompany three other pilots, flying single-seat F-16As, on a training mission over Poinsett Range, located 10 miles south of Shaw. For the attack, we had dummy AGM-65 *Maverick* TV-guided missiles on our starboard outboard stations and four to six BDU-33s (Mk 76s) with 25-pound charges. We also carried 150 rounds of 20mm ammunition for strafing.

I settled into the seat and connected the fittings to my life raft, lap belt and shoulder straps. Then I connected my G-suit, oxygen mask and radio couplings.

After engine start-up, I checked the oxygen and radios and donned my lightweight helmet. I adjusted the ICS volume and told Ellis that everything looked good. We taxied to the runway and took off.

Ellis shoved the throttle and the jet dashed forward. At 28,500 pounds (a little over one-half the average weight of an F-4 *Phantom* at 46,000 pounds), our takeoff speed was 155 knots. The single-seaters were about five knots less. The three F-16As joined on our wing and we headed for the planned low-level route which would end at Poinsett Range.

Along the way, Ellis used the *Maverick's* TV to pinpoint a white water tower which was our target. He locked the *Maverick's* cross hairs onto the tower and guided the missile toward it. The missile was a reusable dummy so it stayed on the rail, but the training was very realistic.

We climbed away from the tower and all four *Falcons* arrived at the range for our bombing runs, beginning at 4,000 feet. Ellis tried a 15-degree dive, then a 10-degree delivery, followed by a moderately level approach. Our release was at 1,800 feet.

I watched the G-meter in front of me. It pegged at 6 G's. We were really pulling and I was quite impressed with the *Falcon's* reclined seat.

After our bombs were gone, we dropped to 700 feet for strafing. My pilot warned me that the M61A1 gatling gun would "get my attention."

Wheeling in over the target, we leveled off and Ellis pressed the trigger.

Br-t-t-ttt!

The cannon port was right outside my seat on the left side of the aircraft. It sounded like the world's loudest sewing machine. In less than a second, the gun spit out 50 rounds.

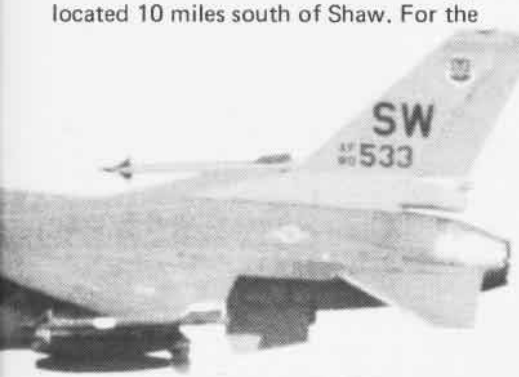
After our strafing run, we climbed to set up for another pass. In the meantime, the other F-16 pilots tried their luck.

In our second run, Ellis made a few dummy *Maverick* attacks. The *Falcon* showed its nimbleness even in bombing deliveries.

Our ammunition was spent and we joined up at 4,500 feet and returned to Shaw. On the way, Ellis let me fly the plane. It took a while getting used to the offset stick, but I found the aircraft responsive. After a few approaches, we set up for a full-stop landing.

Landing the F-16 was different than landing a Navy airplane. Naval Aviators are taught to bring their planes, with heavy landing gear, down with an authoritative thump. Air Force pilots, however, are taught to bring their less robust gear down with greater care.

We touched down and headed back to the 19th's line. The flight had been too short, but I had received a personal look at one of America's front-line tactical jets. And I think Naval Aviators will welcome its arrival in 1987. ■



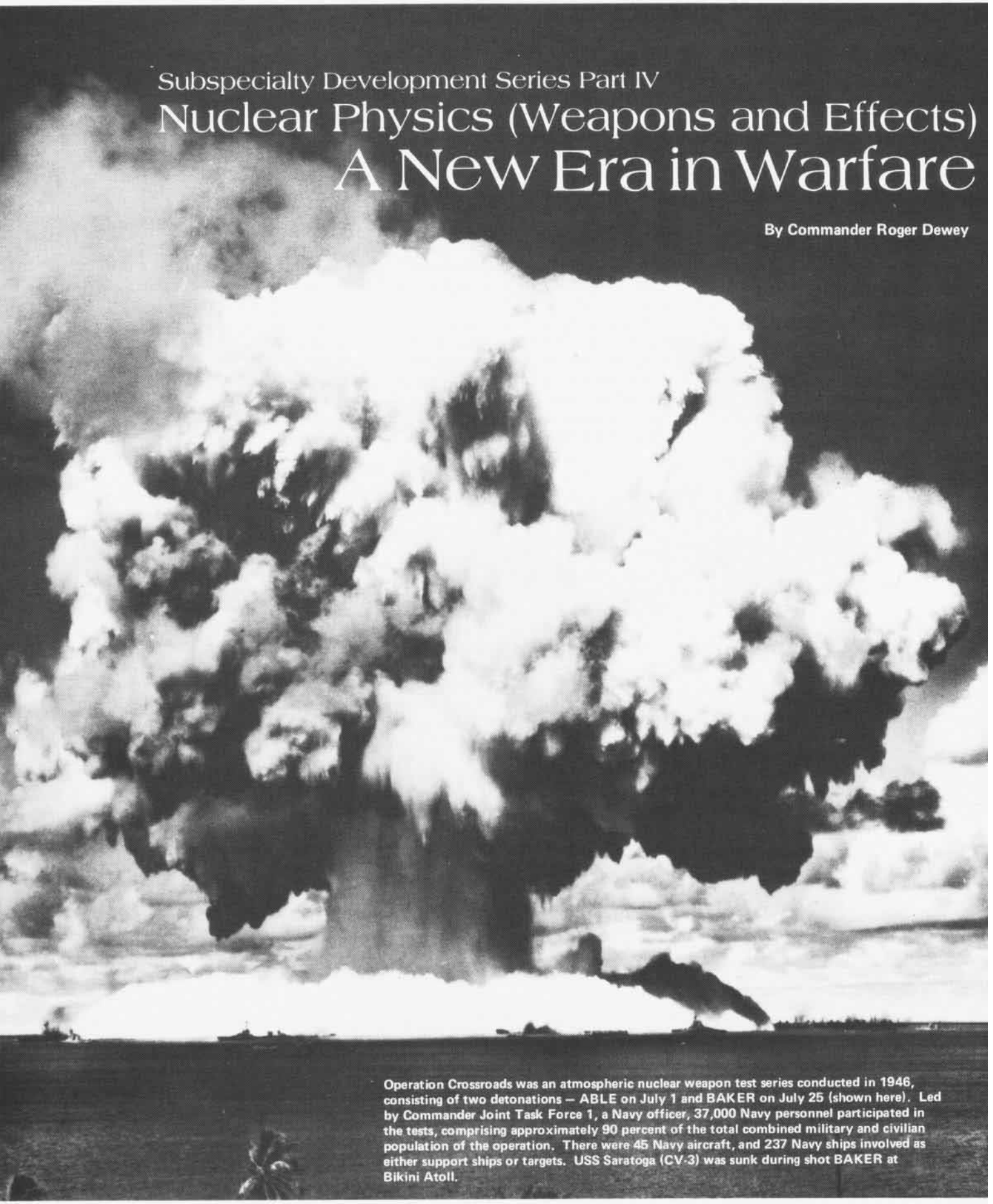
Defense Nuclear Agency

Subspecialty Development Series Part IV

Nuclear Physics (Weapons and Effects)

A New Era in Warfare

By Commander Roger Dewey



Operation Crossroads was an atmospheric nuclear weapon test series conducted in 1946, consisting of two detonations – ABLE on July 1 and BAKER on July 25 (shown here). Led by Commander Joint Task Force 1, a Navy officer, 37,000 Navy personnel participated in the tests, comprising approximately 90 percent of the total combined military and civilian population of the operation. There were 45 Navy aircraft, and 237 Navy ships involved as either support ships or targets. USS Saratoga (CV-3) was sunk during shot BAKER at Bikini Atoll.

Forty years ago, on the morning of July 16, 1945, in the high desert a few miles northwest of the small town of Alamogordo, N.M., the sun rose twice. The first sunrise was the dawn of the atomic age. The aftershocks of that first atomic explosion are still being felt today by scientists, diplomats and armed forces around the world. Warfare could never again be the same after that fateful dawn.

On July 1, 1946, during Operation *Crossroads,* Navy tests began to determine the effects of atomic bombs on naval vessels at Bikini Atoll, Marshall Islands in the western Pacific. To the Navy and Naval Aviation, the tests made clear the importance of nuclear weapons in control of the sea. But they also provided detailed data on the effects of nuclear blasts and a sound justification for intensified development of tactics and equipment to protect a naval task force from such attacks. Since that time, nuclear deterrence has become an important Navy mission, one that is vital to our nation's defense. Naval Aviation, with its strike and antisubmarine warfare roles, is a crucial part of that nuclear deterrence.

To help maintain our nuclear deterrent capability, Naval Aviation officers with a subspecialty in Nuclear Physics (Weapons and Effects) are vitally important. An understanding of the role of nuclear weapons in naval warfare enables an officer to have a real impact on the future course of our Navy. The aviator with such a background is looked to as *the* nuclear expert who can significantly contribute to the development of modern Navy weapons systems and tactics.

The Naval Postgraduate School (NPS), Monterey, Calif., and the Air Force Institute of Technology (AFIT), Wright-Patterson AFB, Dayton, Ohio, both have quotas available for naval officers interested in the study of nuclear weapons and effects. The education gained at either institution permits an officer to knowledgeably address current and future problems in nuclear warfare tactics, weapon design and survivability of naval forces in a nuclear environment. Such an education greatly expands an officer's professional knowledge and technical expertise.

Successful completion of the Nuclear Physics (Weapons and Effects) curriculum leads to designation as an XX67P subspecialist and to a Master of Science in Physics from NPS or in Nuclear Science from AFIT. An officer with an undergraduate engineering degree may, with appropriate electives, opt for an M.S. in Nuclear Engineering from AFIT.

Entry into the Nuclear Physics (Weapons and Effects) program is in August at AFIT or October and April at NPS. These curricula require a security clearance at the Secret level.

Both curricula are based on a foundation of mathematics, physics and engineering sciences. The courses of instruction include atomic and nuclear physics, electromagnetics, atmospheric physics, fluid dynamics, materials science and the interaction of radiation with matter. These fundamentals are applied to the study of nuclear explosives and the interaction of such nuclear effects as shock, blast, heat or electromagnetic pulse with real military systems. A guest lecture and seminar program, in addition to visits to West Coast weapon-related commands, helps keep students abreast of the latest developments in modern theory and technology.

The NPS and AFIT curricula do *not* train an officer to be a weapons officer in a squadron or aboard ship and there are no specific billets for XX67 subspecialists. These curricula *do* provide a systems engineering approach to the study of nuclear weapons and effects which will strengthen the officer's technical and analytical problem-solving skills and will expand his capability for creative thinking. The aviator who has earned a master's degree in Nuclear Physics is one of the select few and is sought after both at sea and ashore.

After graduation and designation as an XX67P subspecialist, the Naval Aviator usually returns to a sea-duty billet in a squadron or on a ship or staff, in order to maintain a normal career progression. The next shore-duty assignment is generally a billet which makes use of the subspecialty in nuclear weapons and effects. The typical XX67 subspecialist might manage a nuclear weapons development project in a systems command, coordinate an underground test project for a DoD agency, or prepare nuclear tactics for a fleet or unified commander.

Top-flight performance in a subspecialty job qualifies an officer for designation as a *proven* subspecialist, which changes his code to XX67Q. This is a definite plus with selection boards. Results of recent commander and captain selection boards show that subspecialists with Navy-sponsored graduate degrees fared significantly better in the stiff competition for promotion.

As naval warfare and its weapons become increasingly sophisticated, the Navy will need more experts in the fields of nuclear physics and engineering. Naval Aviators interested in expanding their technical knowledge in these fields can contribute greatly to the Navy's stock of expertise. At the same time, they can obtain a graduate education and enhance their own career opportunities.

For information on the Nuclear Physics (Weapons and Effects) subspecialty, contact Cdr. Roger Dewey, Office of the Director, Undersea and Strategic Warfare and Nuclear Energy Development Division, Office of the Chief of Naval Operations, OP-981N1, Washington, D.C. 20350-2000, autovon 225-3633/2482 or commercial (202) 695-3633/2482. ■

Naval Aviation officers with the XX67P subspecialty are in demand in a variety of operational, technical management and policy-making billets throughout the Navy, and also in joint agencies in the Departments of Defense and Energy.

Typical billets available for XX67P-coded officers are:

Captains

Head, Nuclear Branch, Office of the Chief of Naval Operations (OP-981N), Washington, D.C.

Deputy Assistant Director for Operations, Office of Military Application, U.S. Department of Energy, Germantown, Md.

Director, R&D Test Directorate, Defense Nuclear Agency Field Command, Albuquerque, N.M.

Director, Survivability Division, Theater Nuclear Warfare Program Office, Naval Sea Systems Command, Washington, D.C.

Special Assistant for Nuclear Matters, Office of the Assistant to the Secretary of Defense (Atomic Energy), Washington, D.C.

Commanders

Tactical Nuclear Warfare Plans Officer, CinCLantFlt, Norfolk, Va.

Physicist, Target Damage Assessment, Defense Nuclear Agency Headquarters, Washington, D.C.

Technical Director, Nuclear Weapons Training Group, Atlantic, Norfolk, Va.

R&D Coordinator, Defense Nuclear Agency Headquarters, Washington, D.C.

Lieutenant Commanders

Instructor, Nuclear Warfare, Nuclear Weapons Training Group, Atlantic, Norfolk, Va.

Nuclear Weapons R&D Officer, Defense Nuclear Agency Field Command, Albuquerque, N.M.

Navy Research Associate, Los Alamos National Laboratory, Los Alamos, N.M.

Nuclear Weapons Employment Instructor, Nuclear Weapons Training Group, Pacific, San Diego, Calif.

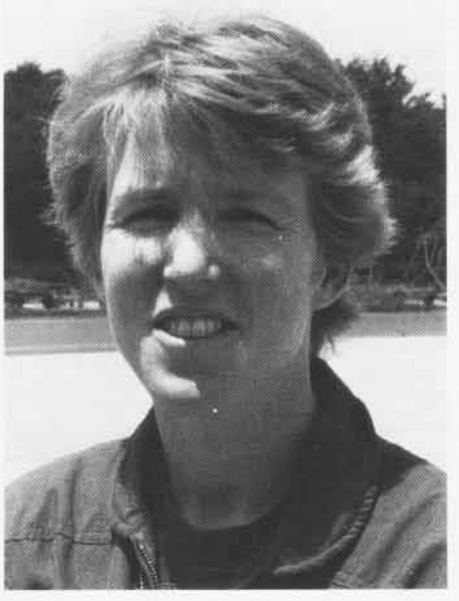
Lieutenants

Test Program Director, Defense Nuclear Agency Field Command, Albuquerque, N.M.

Navy Research Associate, Lawrence Livermore National Laboratory, Livermore, Calif.

Lt. Nevius, her white helmet barely visible, pilots a CH-46 at NATC Patuxent River, Md.

Navy's First Female Test Pilot



Story and Photos by
JO2 Timothy J. Christmann

This December, a woman will leave an establishment which has enhanced the careers of astronauts, admirals, aircraft carrier skippers and squadron commanding officers. It is a place where she has flown more aircraft, managed more money and borne more responsibility than most Naval Aviators will in a lifetime.

The place: The Naval Air Test Center (NATC) in Patuxent River, Md.

The woman: Lieutenant Colleen Nevius, the Navy's first female test pilot.

"I feel that I've been given a very responsible job which represents an important part of the Navy's weapons systems acquisition program," said Lt. Nevius. "I'm hoping that the experience I've had here will be positive for my career. The fact that I haven't screwed up yet helps."

Since becoming the first woman to graduate from the U.S. Naval Test Pilot School (TPS) in June 1983, Nevius has been the project officer for the CH-46 *Sea Knight* and CH-53E *Sea Stallion* helicopters at NATC's Rotary-Wing Directorate. This means she has been responsible for many modifications concerning both helicopters or, in other words,

juggling anywhere between 10 to 30 projects (totaling nearly $1 million) per year.

"I am not only in charge of executing these projects, but following them through the developmental phases (i.e., contract development, equipment acquisition, etc.) and budgeting funds for testing from the Naval Air Systems Command," she said. "On any given project, I usually work with a lead engineer, maybe one or two other assistant engineers and a couple of pilots and copilots."

Lt. Nevius, whose work week averages between 40 to 100 hours, depending on the project load, added that each day is different, involving flying (about 300 hours a year), reports, phone and personal liaison, travel, test planning, review of test results, and research.

"You can get burned out easily here in three years because the pace is fast and you never feel you've done enough," she said. "You spend about a year at the Test Pilot School, six months trying to learn the ropes, then 18 months as a project pilot."

She remarked that her most significant accomplishment to date concerns testing about 37 changes to the safety, reliability and maintainability (SR&M) of the CH-46. The modifications, which will include changes to the helicopter's flight control system, will be applied to all Navy and Marine Corp *Sea Knights*. "We [the test center] feel these changes will make the H-46 a better fleet aircraft," added Nevius.

"She [Nevius] has done a fine job on the SR&M project because she was able to find deficiencies in the helicopter's performance and was instrumental in correcting them," said Lieutenant Commander Bill Meeley, Attack/Assault Helicopter Department Head, who supervises Nevius and six other project officers.

Overall, Lt.Cdr. Meeley said that Nevius has been "an outstanding test pilot" and that "her record speaks for itself."

Since becoming a test pilot for the rotary-wing branch of the test center, Lt. Nevius has been involved in nearly a hundred modifications to the CH-46 and CH-53. Most projects have not been as extensive as the CH-46's SR&M, but they appear voluminous as completed job files on a bookshelf beside her desk. Said Nevius, "I think I've been fairly productive during my time here."

"She's a thorough test pilot," added Meeley. "She does her homework and prepares for a test flight with attention to detail and safety in mind."

He said that Nevius is "very aggressive" and isn't afraid to tackle difficult jobs. For instance, Meeley noted that once he and Nevius, flying in a CH-53E, conducted day and night shipboard testing for wind envelopes on an LPD off the California coast. He admired her for that because, although she is qualified in flying the CH-53E, Nevius didn't have any prior operational experience in the aircraft.

"A lot of people would have shied away from doing night shipboard wind envelope expansion tests in an aircraft they didn't have much experience in," said Lt.Cdr. Meeley, "but she stuck in there and did the work."

He added that Lt. Nevius pulls her own weight. "She is very good at not highlighting the fact, positively or negatively, that she is a woman," he said. "In other words she is willing to do the hard things. She does her job like every other test pilot here and that is how she is regarded."

"My fellow officers treat me as a fellow officer and pilot," said Nevius, whose goal is to become a squadron skipper. "When I do dumb things, I get my share [of criticism]. When I do okay, life goes on.

"There will [probably] always be those who react first according to gender," she added. "But, with luck, they'll learn that there are more important differences to be considered in the workplace."

Nevius isn't impressed with the label *first woman test pilot,* and feels she doesn't deserve special attention.

"The people that deserve recognition are those who laid it on the line and selected me," she remarked. "They gave me the chance to stand or fall on my own."

"I look forward to the day when there aren't any restrictions on what women can and cannot do in the Navy." —Lt. Colleen Nevius

Colleen Nevius decided to become a Naval Aviator in 1973, the year the Navy opened its flight program to women. "I didn't want to pursue anything else career-wise," said Nevius, who was an 18-year-old high school student at the time. "Besides, I knew I was physically and mentally capable of flying. It just seemed like the right thing to do."

Her father, Captain William B. Nevius, USN(Ret.), almost expected his daughter's decision. "She had talked about it for so much of her life," he said, "that it didn't come as a surprise when she actually went ahead and did it."

Capt. Nevius, who spent most of his 23 years in the Navy flying jets off aircraft carriers, added that his daughter was always a "superachiever." In addition to attaining high grades in school, she excelled in sports and won the Hawaiian half-mile championship (running 2:22) while a high school junior.

Nevius finished high school with honors in 1973 and became one of the first women to receive a full Navy ROTC college scholarship. The scholarship paid for her tuition, books and fees, plus gave her $100 per month in return for four years of obligatory service.

In 1977, she graduated from Purdue University with a degree in management and the following year was accepted to Aviation Officer Candidate School in Pensacola, Fla.

During her primary and advanced flight training in Corpus Christi, Texas, Ens. Nevius flew many of the same T-28 *Trojans* her father had flown while he was a flight instructor there in 1955. In fact, they later compared logbooks and discovered that she soloed the same T-38 (BuNo 137648) that Capt. Nevius had flown 23 years earlier on the day after Colleen was born in Corpus Christi.

Following flight training, Nevius went into the helicopter pipeline. "I chose to fly helicopters because I fell in love with them on my first flight," she said. "After having flown a small prop plane and a jet, I climbed into a *Huey* and I was hooked. In addition, the realist in me figured that helicopters might be the first aircraft in which women could really join an operational warfare community like helicopter combat support."

After successfully completing helicopter training, Ens. Nevius received her aviator wings in February 1979, and her father pinned them on. "I was really proud of her," he said.

"I think he may have had some misgivings," she said. "My father came up

Lt. Nevius prepares to take her favorite aircraft for a test flight.

through the ranks when women weren't flying Navy aircraft. And I think he shared some of the same stereotype feelings that a lot of people had then — mainly that good girls shouldn't join the Navy and fly airplanes."

Capt. Nevius, who is now an electronic warfare technical director for Computer Services Corporation, in California, said that he didn't have any misgivings, but harbored some of the old feelings about women in Naval Aviation.

"You have to realize that my career started in 1947," he added. "It was a man's world then, and it was hard for me to figure out where women were going to find a place in that world."

Following flight training, Nevius was assigned to Helicopter Combat Support Squadron (HC) 6 in Norfolk, Va., where she worked as airframes branch officer and helicopter aircraft commander for the H-46. While there, she and another female pilot became the first women to fly vertical replenishment helicopters to ships at sea. Prior to 1978, Title 10 U.S. Code 6015 prevented women from serving aboard operational vessels. However, Congress changed the code and permitted women to deploy on ships temporarily for up to six months.

During her tour with HC-6, Nevius made more than 500 shipboard landings on more than a dozen vessels. "Aboard ship is the best place to fly," she said. "It is the most challenging and the most rewarding. We are out there doing the same thing in peacetime that we would be doing in wartime.

While flying with HC-6, Nevius applied to the U.S. Naval Test Pilot School, which features a grueling 11-month curriculum aimed at turning some of the most exceptional Naval Aviators into test pilots.

"Test Pilot School sounded like a challenging tour which would allow me to influence the future of the H-46," she said, "so I applied.

"As perhaps in any selection process, I was not at all confident of the outcome," she added. "I was confident, however, that if the Navy needed an H-46 pilot at the Naval Air Test Center, I would be considered. I hoped my record and experiences at HC-6 would speak for me."

They did. TPS, which had been a bastion for training only male Naval Aviators since its inception in the mid-1940s, chose Nevius in 1982. Her acceptance enabled her to attend a school that has been influential in the careers of distinguished men like John Glenn, Alan Shepard, Charles Conrad, Alan Bean, Richard Gordon and M. Scott Carpenter, to name only a few.

"TPS was 150-percent demanding," said Nevius. "It required a lot of time, perseverance, dedication, talent and a desire to survive. The school took more out of me than I thought I had, but it was most satisfying to complete."

As a student at TPS, she qualified in the OH-58 *Kiowa,* AH-1S *Cobra* and T-2 *Buckeye.* She also flew the H-46 *Sea Knight,* SH-3 *Sea King,* T-38 *Talon,* UH-1B *Huey,* P-3B *Orion,* X-26A *Frigate,* U-6 *Beaver,* UC-12B *Huron,* NU-1B *Otter* and UH-60 *Blackhawk.* As a project pilot, in addition to the CH-53 and H-46, she has flown other aircraft, including the TH-57 *Sea Ranger,* T-34C *TurboMentor,* OV-10A *Bronco* and SH-2F *Seasprite.*

"It was great fun exploring the strength and weaknesses of each aircraft and just enjoying the feel of flying," said Nevius. "The biggest challenge, and most fun, was flying the U-6 *Beaver.* I had never flown a tail-dragger before and, luckily, I had a brave instructor pilot who let me figure it out for myself."

She added, however, that her favorite aircraft is the CH-46. "It's a versatile, sturdy workhorse that has a lot of zip," she remarked.

"There was no doubt in my mind Colleen would make it through TPS," said her younger brother, Lieutenant Bill Nevius, a radar intercept officer who flies with Fighter Squadron 41. "She has always been a very competitive person. I don't think she's ever failed at anything she set out to do."

Shortly after graduating from TPS, Lt. Nevius said that she hoped her accomplishment would be a flag to other women who are interested in the program. To her delight, Lieutenant Beth Hubert, an A-4 *Skyhawk* driver, will graduate from TPS in December.

"It will be better when there is a third, fourth and fifth woman at TPS," said Nevius, who is married to Lieutenant Commander Bill Readdy, assistant strike officer aboard USS *Coral Sea.* "Many women don't know that the test center is a viable option for shore duty. That's a shame because there are quite a few talented women aviators who could do very well here."

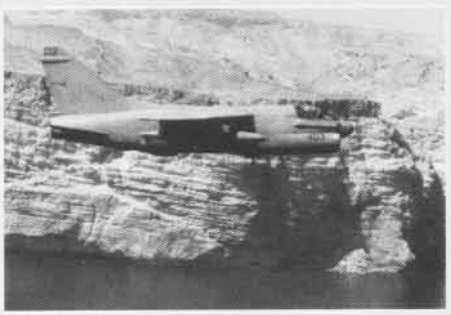
She added that the Navy should try to broaden the opportunities for women.

"I believe that all individuals should have the choice to pursue their talents and desires without limits," said Nevius. "And I look forward to the day when there aren't any restrictions on what women can and cannot do in the Navy." ■

Awards

The *Shrikes* of VA-94 have set a historic milestone in carrier aviation. Under the command of Cdr. T. L. Hightower, VA-94 made a clean sweep of all major Naval Aviation awards competition during the 1983-84 training cycle.

This unprecedented achievement began when the *Shrikes* won the ComNavAirPac "E" for battle efficiency, then became the recipients of the 1984 Bruce Carrier Memorial Award for excellence in maintaining the A-7E *Corsair II* (shown in photo), and the CNO Aviation Safety



Award. Shortly thereafter, they were awarded the RAdm. Clarence Wade McClusky Award recognizing VA-94 as the best attack squadron in the Navy.

At the 10th annual convention of the Association of Aviation Ordnancemen, AO1 Charles L. Lavene was named the Navy's Aviation Ordnanceman of the Year for 1985. Lavene is the leading petty officer of *Carl Vinson's* aviation weapons movement control station which serves as the coordination center for the activities of the weapons department's five other divisions. AO1 Lavene was selected for his "professional performance from boot camp to ordnance control."

Redesignated

Marine Corps Air Station (Helicopter), Futenma, Japan, has been redesignated and no longer carries the word "helicopter" in its title. According to the air station's adjutant, "The air station is no longer a facility primarily supporting a helicopter group, but an air station capable of hosting any type of DoD or civilian aircraft." MCAS Futenma currently houses fixed-wing OV-10 *Bronco* and C-130 *Hercules* aircraft.

Anniversary

The Fleet Aviation Specialized Operational Training Group, Atlantic Fleet (FASOTraGruLant), which was born in the final year of WW II and has undergone name and tasking changes since then, celebrated its 40th anniversary last July 20.

This group is responsible for training in everything from survival evasion, resistance and escape to aviation maintenance management and ASW, to nuclear weapons loading and delivery training. The numerous services of FASOTraGruLant are available to Atlantic fleet activities, reserve units, members of the Army, Air Force, Coast Guard, and foreign nationals under the foreign military sales program. More than 15,000 students will receive training in 1985 at FASOTraGruLant.

Reserves

When it became operational in January 1984, the VP Master Augment Unit (MAU) at NAS Brunswick opened a door for the reserve P-3 community by becoming the first reserve augment unit to fly the P-3C Update II aircraft.

For two weeks, VP-8's Honorary Crew 13, consisting of members from the VP MAU, worked alongside their active duty counterparts in Rota, Spain. This is the first time an augmenting crew performed the ASW mission side by side with its gaining squadron at the deployed site. The opportunity for the Naval Air Reserve to fly the P-3C weapons system provides immediate combat-ready augmentation crews to fleet squadrons in the event of mobilization.

Records

During *Minex* 85-2, a mine countermeasures exercise off the coast of Astoria, Ore., HM-14 accomplished a historic feat for the squadron. Two RH-53D *Sea Stallions,* launched off *Tripoli,* performed in-flight refueling with a KC-130 tanker from VMGR-352, then flew 90 miles to perform minehunting and acoustic minesweeping operations and again successfully refueled in-flight with the Marine Corps tanker before returning to *Tripoli.*

Because of the unique air-to-air refueling capabilities of the RH-53D, the commander of this exercise was able to conduct precursor minehunting and minesweeping operations 24 hours prior to the arrival of the remainder of the task force.

Connecting with the KC-130 from VMGR-352 for in-flight refueling requires special handling and a versatile aircraft. Here, an HM-14 aircrew demonstrates the ease with which they perform this tricky technique.

Touching down on Constellation, VAW-113 marked the completion of 1,149.5 hours and set a new Pacific Fleet E-2 flight-hour milestone during the third quarter of FY 85. This achievement, which equates to almost 48 days of round the clock flying, was accomplished while supporting Connie and Battle Group Delta. While attaining this record, the Blackeagles increased their mishap-free flying record to seven years and 12,820 hours.

Rescue

A jet pilot from VMA-211, MCAS El Toro, Calif., is thankful for a quick-acting team of Navy people who combined efforts to rescue him from the sea off the Coast of California. When the call came about his downed A-4 *Skyhawk,* fast reaction by the Fleet Air Control Support Facility in coordinating the rescue efforts of USS *Enterprise,* USS *Texas,* HS-6 and VAW-112 personnel undoubtedly saved the life of the injured pilot.

The HS-6 search and rescue crew, consisting of Lt.Cdr. Doug Roulstone, Lt. Kevin Stapleton, AW2 George Higgins and AW2 Michael Rouse, was flying routine training operations in an SH-3H *Sea King* when they received the call about the downed pilot. Higgins spotted the survival raft, but the survivor was not located until 20 minutes later. Rescue swimmer Rouse jumped in the water from the hovering helo to assist the downed pilot onto the rescue hoist. The aviator was taken to *Texas* for a medical examination before being transported by HS-6 to Balboa Naval Hospital, San Diego.

Honing the Edge

One weekend a month, when NASA astronaut S. David Griggs isn't orbiting the earth as a space shuttle crew member, he is commanding officer of the newly formed Naval Reserve Naval Space Command 0166 unit at Dahlgren, Va.

This unit supports the two-year-old Naval Space Command Headquarters at Dahlgren, which was established to consolidate existing and future naval space activities in one office. Even though the unit still needs to fill some billets, five officers and three enlisted personnel completed their first two-week active duty for training session at command headquarters. Plans are under way for the establishment of two more NR NavSpaceCom detachments in Houston, Texas, and Colorado Springs, Colo.

Honing the Edge

After a plane or helicopter has crash-landed, the first seconds are critical, especially if the aircraft becomes submerged. The crew realizes they must reach the surface. Strapped in their seats, they begin to tear, pull and wrestle with the gear which probably saved their lives on impact. That same gear, in seconds, can become a death trap.

A method has been developed which gives flight crews more time to get free from a submerged aircraft. The Coast Guard developed the underwater rebreather/flotation vest in the early 1980s, and the Navy completed testing the device in 1984. The Coast Guard is currently the only U.S. military force using the dual-purpose vest. More than 2,000 Coast Guard members are now properly trained to use the device, with a task force currently traveling throughout the country to train additional flight crews.

PA2 James L. Graham

Cdr. Dennis Majerski receives final instructions from Chief Aviation Survivalman David Giza before he is inverted in the egress trainer. Aviation Survivalman Mike Keevers (center) is prepared to observe and will be ready to assist in the event of an emergency.

Et cetera

Another squadron transitioned to a new aircraft. VAW-115 recently replaced its E-2Bs with the newer E-2C. *Liberty Bell* personnel underwent extensive classroom and on-the-job training at NAF Atsugi, Japan, and NAS Miramar, Calif., to ensure a smooth turnover.

"Naval Aviation is the backbone of the modern Navy, the thing without which the rest of the Navy can't do its job." With these words, VAdm. Robert F. Dunn, ComNavAirLant, opened "Fly Navy East (FNE)," the first overall symposium of Naval Aviation held on the East Coast.

The symposium was held last June at Virginia Beach, Va., to bring all types of Naval Aviators together, in keeping with the FNE theme – Naval Aviation, A Winning Team – and to increase the operational readiness of the entire Naval Aviation community.

Fly Navy West is scheduled to be held on the West Coast in 1986.

Correction: Regarding VFA-137 under "Established" in the September-October issue, page 30, the first sentence should have read: "VFA-137 is the first operational F/A-18 squadron at NAS Cecil Field, Fla."

Change of Command

ComCarGru-6: RAdm. Diego G. Hernandez relieved RAdm. Roger E. Box.

ComFitAEWWingPac: Como. Alvin S. Newman relieved RAdm. Thomas J. Cassidy, Jr.

ComHelSeaConWing-1: Capt. Charles W. Oakes relieved Capt. E. Earle Rogers II.

ComHSWing-1: Capt. Steve W. McDermaid relieved Cdr. Craig L. Reynolds.

ComNavAirPac: RAdm. James E. Service relieved VAdm. Crawford A. Easterling.

ComPatWing-2: Capt. Ronald F. Testa relieved Capt. William L. Vincent.

ComSeaBasedASWWingsLant: Como. Leonard Perry relieved RAdm. Allan Paulson.

4th MAW: MajGen. Jacob W. Moore relieved MajGen. Kenneth W. Weir.

HC-1: Cdr. John T. Francel relieved Cdr. William M. Calhoun.

HC-3: Capt. Eric L. Peterson relieved Capt. David L. O'Neill.

HC-5: Cdr. Kenneth L. O'Bannon relieved Cdr. William T. R. Bogle.

HC-6: Cdr. Raymond J. Boucree relieved Cdr. F. W. St. Pierre.

HML-167: LtCol. Brian J. O'Donnell relieved LtCol. Michael J. Graf.

HS-6: Cdr. Michael E. Middleton relieved Cdr. Miles M. Staley.

HSL-30: Cdr. Jerry Baker relieved Capt. Martin J. Polsenski.

HSL-41: Cdr. Michael J. Coumatos relieved Capt. Michael B. O'Connor, Jr.

NavAvCtr: Capt. Wallace C. Courtney relieved Capt. Warren R. Abel.

NAF Detroit: Capt. Guy D. Nickerson relieved Capt. Denis R. Weichman.

NAS Corpus Christi: Capt. E. Earle Rogers II relieved Capt. Jeryl D. Funderburk.

NAS Glenview: Capt. Ronnie J. Ackerman relieved Capt. Joseph W. Sessions.

NAS Memphis: Capt. Peter M. Reber relieved Capt. Barry A. Spofford.

NAS Moffett Field: Capt. Henry H. Davis, Jr., relieved Capt. J. D. Piccioni.

NAS Point Mugu: Capt. R. Moon Vance relieved Capt. Gordon R. Nakagawa.

NAS Willow Grove: Capt. Thomas H. Hoivik relieved Capt. David T. May.

USS *Tripoli* (LPH-10): Capt. Terrence S. Todd relieved Capt. Robert J. Spane.

VAW-115: Cdr. Ronald B. Weber relieved Cdr. Donald D. Herzberg.

VAW-127: Cdr. T. Scott Eseman relieved Cdr. Robert L. Peterson.

VF-2: Cdr. Jay A. Campbell relieved Cdr. Paul Ringwood.

VF-102: Cdr. J. M. Lyle relieved Cdr. Marc A. Ostertag II.

VMA-131: LtCol. Robert McVey relieved LtCol. Robert L. Beavis.

VMFA-333: LtCol. Thomas F. Wunderlich relieved LtCol. Ronald J. Curtis.

VP-5: Cdr. Richard G. Kirkland relieved Cdr. Mark B. Baldy.

VP-16: Cdr. Jimmy R. Love relieved Cdr. James V. Qurollo, Jr.

VP-17: Cdr. Richard A. McAdoo relieved Cdr. Thomas T. Verhoef.

VP-40: Cdr. James I. Munsterman relieved Cdr. Alan L. Ross.

VP-56: Cdr. H. Michael Wilson relieved Cdr. Donald L. Riffle.

VS-31: Cdr. William M. DeSpain relieved Cdr. Ernest L. Street.

VT-6: Cdr. James W. Whatley relieved Cdr. Robert F. Duggan.

VX-4: Capt. Henry M. Kleemann relieved Capt. R. Moon Vance.

awards

SecNav Energy Conservation Awards

The following aviation units were FY 84 winners of the Secretary of the Navy Conservation Award: NAS North Island, Calif., large shore activity; USS *Denver* (LPD-9), small ship; and VC-8, aviation squadron.

Recipients demonstrated that great savings can be generated and mission capability increased through sound energy management. These commands are authorized to fly the SecNav Energy flag for one year.

AEW Excellence Award

NAS Miramar's VAW-117 was selected as the winner of the 1984 Airborne Early Warning Excellence Award. Sponsored by Grumman Corporation, the award has been presented to the leading AEW squadron each year since its inception in 1976. A traveling trophy in the form of a scale model of USS *Enterprise* (CVN-65) will remain with VAW-117 until the award is won by another squadron.

CNO Readiness Through Safety Awards

The Naval Air Systems Command and Fleet Marine Force, Atlantic were presented the 1984 CNO Readiness Through Safety Award. The award is given to the major commands that contributed the most towards readiness, high morale and economy of operations through safety. Recipients of this award also receive the Admiral James S. Russell Naval Aviation Flight Safety Award.

National Air and Space Museum Trophy

Three individuals received the newly created National Air and Space Museum Trophy for their achievements in the fields of aerospace science and technology. The 1985 award recognizes astronauts Capt. Bruce McCandless, USN, and Kathy Sullivan for their contributions to the current space program and honors Robert R. Gilruth for his outstanding leadership in the space program's early years.

The annual award was sponsored this year by the Federal Express Corporation and Delta Airlines. The trophy itself consists of two open half circles of polished steel, set at right angles to each other and supporting a small polished sphere in the center by a series of thin steel rods. The trophy will be exhibited in the museum's south lobby.

PROFESSIONAL READING

By Commander Peter Mersky, USNR-R

Gunston, Bill. *Modern Fighting Aircraft: Harrier.* Arco Publishing Co., 215 Park Avenue, New York, N.Y. 10003. 1984. Illustrated. 64 pp. $11.95.

Volume 5 of this series, this large format book gives an in-depth look at the British *Harrier* and the U.S. AV-8A/B/C. The story behind the genesis of the *Harrier* and its subsequent development through the 1960s are also well covered. The majority of the photos are in color and there are several well-done color profile renderings.

Cutaways and systems diagrams abound and the *Harrier's* service in the Falklands and in other navies, i.e., Spanish and Indian, make for fascinating reading.

Knotts, Carol and Peter Moore. *Diamond in the Sky: The USAF Thunderbirds.* Motorbooks International, Osceola, Wisc. 54020. 184 pp. $14.95.

The USAF *Thunderbirds* flight demonstration team was established in 1953 with the Republic F-84G *Thunderjet* as its first mount. The crash in 1982 of four *Thunderbird* T-38s prevented the Air Force's team from completing its season for that year. But, for the 1983 season, the rejuvenated team was re-equipped with brand new F-16 *Fighting Falcons* in the well-known red, white and blue *Thunderbird* markings. This updated edition of a 1978 book gives full coverage to the F-16 era, as well as all the aircraft flown by the *Thunderbirds* over the last 31 years. Most of the photography is black and white, with a center section of full color. Detailed elevation drawings of the aircraft also complement the text.

This compendium of photos and facts about one of the premier flight demonstration teams provides several hours of enjoyable browsing for even the casually interested reader. Those who have a more specific interest, such as modellers, will be well served, too. The photographs and drawings give a wealth of information and technical details about the aircraft.

Heinemann, E., R. Rausa and K. Van Every. *Aircraft Design.* Nautical & Aviation Publishing Co. of America, Baltimore, Md. 21201. 1985. 152 pp. Illustrated. Indexed. $24.95.

This book represents considerable effort on the part of the three authors as well as originality on the part of the publisher. By no means intended as a conventional textbook addressing a heavy technical subject with equally heavy technical writing, this book is "a basic guide to the concepts behind airplane design based on the authors' combined experience and knowledge about combat planes."

Ed Heinemann is one of the most famous western aircraft designers, who designed such legendary aircraft as the SBD *Dauntless* of WW II and the A-4 *Skyhawk* of Vietnam fame. Capt. Rausa, an experienced Naval Aviator, came to know another of Heinemann's creations, the A-1 *Skyraider,* while flying the last combat tour of the single-seat attack bomber in 1968 from USS *Coral Sea.* Mr. Van Every has an enviable record of experience working with Heinemann as well as on other aviation projects.

Illustrated with photos and graphs specially drawn for this book, *Aircraft Design* addresses all design phases of a modern combat aircraft, including structure, propulsion selection and mechanics, support systems and furnishings. Of special interest to those associated with Naval Aviation is the chapter entitled, "Landing Gear Systems for Carrier-based Aircraft."

This book is a unique, refreshing change from the normal aeronautical fare and should be read by everyone with an interest in aviation. It will give them a solid background on what an airplane physically goes through and the considerations which must be given to its production and design.

Ethell, Jeffrey and Alfred Price. *Air War South Atlantic.* Macmillan Publishing Co., New York, N.Y. 1983. 260 pp. Illustrated. Indexed. $17.95.

This book represents perhaps the definitive work on air operations in the 1982 Falklands War between England and Argentina. The authors were in a unique position because they were "invited" to write this book and had many facilities of both nations opened to them. Indeed, Jeff Ethell, who is no stranger to readers of aviation literature and who is fluent in Spanish, conducted research at the source, interviewing many of the Argentine aircrew who took part in the war, as well as flying in several types of aircraft used in the war. Thus, he was able to give an in-depth, informative account of the Argentine side of the conflict.

This book is well supported by black and white photography, much of which has not been published, maps and a comprehensive appendix detailing orders of battle, losses and quick details of the aircraft involved.

Air War South Atlantic is a window on the first war in which current generations of weapons, such as the *Harrier* and sea-skimming antiship missiles, were used. It should be read by anyone with an interest in current military affairs.

Spick, Mike. *Modern Fighting Aircraft, Volume 8: F-14.* ARCO Publishing, Inc., New York, N.Y. 1985. 64 pp. Illustrated. $11.95.

The latest in the growing line of large format books presented by ARCO depicting modern fighters — other titles have included the F-15, F-16 and F/A-18 — this volume details the Navy's fleet defense fighter, the *Tomcat.* Following the established format of the series, individual chapters address the history, design and operational use of the aircraft, utilizing photos, charts and graphs, cutaways and color profiles.

Most of the photographs are in color and show a wide variety of markings and paint schemes which have been applied to the F-14 since its first flight in 1970. Some technical areas covered in the text are on structure, design, power plants, avionics and armament. Cockpit layouts and instrumentation are also presented.

The last chapter is a discussion of the *Tomcat's* service and deployment, centering on the 1981 Gulf of Sidra incident during which two F-14s shot down two Libyan Russian-built SU-22s which had attacked the VF-41 *Tomcats.*

FLIGHT BAG

Brown Shoes Return

Effective September 16, 1985, the wearing of brown leather shoes and khaki socks with the aviation working green uniform was authorized. Brown shoes/working greens are optional through February 28, 1986, and become mandatory on March 1, 1986. The wearing of brown shoes with khaki uniforms is being evaluated.

Oriskany

I am desperately seeking a cruise book from USS *Oriskany* (CVA-34) WestPac Spring-Fall 1970 and will pay a fair price. I would also like to obtain photos and emblems from the carrier.

Lee A. Kampstad
412 Sandy Lane
Elkhorn, WI 53121

F-4

I am a collector of anything relating to the McDonnell Douglas F-4 *Phantom* and would like to obtain photographs, slides, etc., of the F-4 in service with the U.S. Navy and Marine Corps, past and present. I am willing to buy or trade.

Flt. Lt. T. J. Carter
Officers Mess, RAF Leuchars
St. Andrews, Fife KY16 OJX
Scotland

PBY Book

I am writing a book on the PBY *Catalina* but lack much data on the anti-submarine warfare operations of the U.S. Navy PBYs. I would like to contact former members of VPs 63, 83, 84 and 94.

Andrew Hendrie
Sandy Ridge, Amberley Rd.
Storrington, West Sussex RH20 4JE
England

Naval Aviation Fan

I am very interested in Naval Aviation and collect military insignia. I am seeking the opportunity to trade patches with anyone interested.

Hiroyo Shmada
Shigeru-so
2-47-6 Toushin-cho
Itabashi-ku Tokyo 174 Japan

Patches Wanted

I would like to purchase Naval Aviation squadron patches and naval air station fire department shoulder patches. I will trade other fire department shoulder patches for the same.

Robert Vaccaro
12 West 18th Street
Deer Park, NY 11729

I would like to obtain patches from *Coral Sea, Oriskany* and Naval Air Stations, Agana, Guam; Point Mugu, Calif.; and Miramar, Calif. If anyone has information on where I might get these, please contact me.

Roy T. Moy
7862 W. Central
Toledo, OH 43617

VF-143 35th birthday reunion planned. For information, contact Lt. Scott Grundmeier, VF-143, FPO New York, NY 09501-6121, (804) 433-5166.

Photorecon

The letter from Cdr. Carson in the July-August 1985 issue of *NANews* regarding the last of the East Coast photo-reconnaissance squadrons struck my interest. Perhaps some of the photo pilots would be interested in some reminiscences of the beginnings of their activity and of the first squadron.

Early in 1941, a joint Navy/Marine organization called the Beach Reconnaissance Group was established at NAS North Island with three Marine officers and me, a green ensign, and a mixed crew of Marine and Navy enlisted men. We were equipped with one Douglas SBD and one North American SNJ. Our mission was to develop camera installations in the various carrier-type aircraft and to train pilots.

On December 8, 1941, most unexpectedly of course, the whole group embarked on *Saratoga* and was put ashore at Pearl Harbor four days later. We spent about three months on Ford Island, making camera installations in carrier aircraft and conducting some training. After returning to North Island, the group was converted to the Fleet Air Photographic Unit and, in late 1942, was established as Fleet Air Photographic Squadron One (VD-1). Its first commanding officer was then-Lt.Cdr. Howell J. Dyson.

We were assigned the PB4Y *Liberator* and the pilot training was conducted at Kearny Mesa (now NAS Miramar). After much effort to equip a self-sufficient squadron, the whole gang proceeded to Guadalcanal. There, VD-1 remained until late 1944, conducting photo flights all over the South Pacific and participating in the Solomon Islands campaigns and the ones that came later.

After return to San Diego, the squadron was reformed with many of the same personnel and returned to the Pacific. I joined a new squadron then being established, VD-5, and headed west once more as operations, then executive officer. I was at Palmyra Island, en route to Okinawa, when the war ended. Returning to Pearl Harbor, I became VD-5's skipper for a short time before requesting release from active duty at the end of 1945. In the years following, I commanded a squadron of PV-2s at the Los Alamitos Naval Reserve Base before retirement from the Navy.

Presently, as deputy manager of NASA's Aviation Safety Reporting System and editor of the program's various publications, I can look out my office window and watch the comings and goings of the P-3s here at Moffett Field. I am very proud of having worn those gold wings. I often run articles in our monthly bulletin *Callback* dealing with Navy flying and refer to the "World's Greatest Flying School."

Capt. Rex Hardy, USNR(Ret.)
NASA Aviation Safety Reporting System
P.O. Box 189
Moffett Field, CA 94035

The above insignia were recently approved by the Insignia Board.

NANews 1985 Index

WAR PARTY 401 AND 404
OF VA-87 (USS INDEPENDENCE)
PROVIDE CLOSE AIR SUPPORT
FOR MARINE HELOS OF HMM-261
GRAND ANSE BEACH, GRENADA